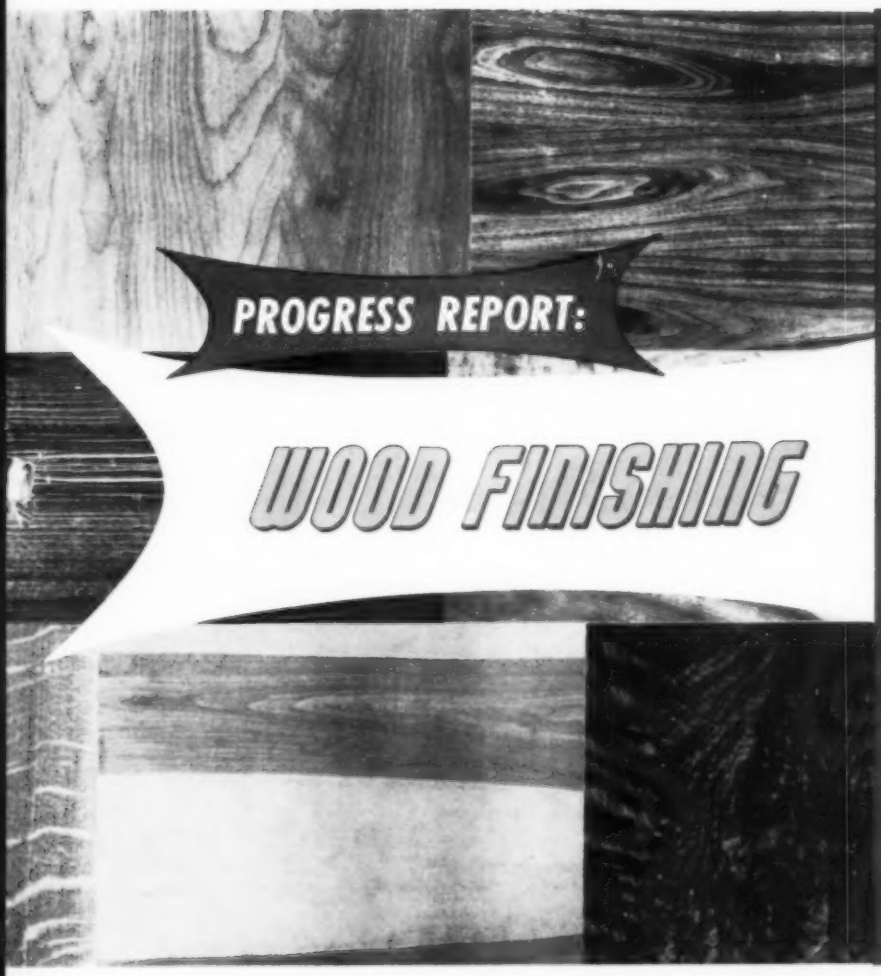
# WOOD & WOOD PRODUCTS

SEPTEMBER, 1959

A Vance Publication

The National Authority on Wood and Allied Products Management and Operations

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**Abrasives**
**Sanding Guide**
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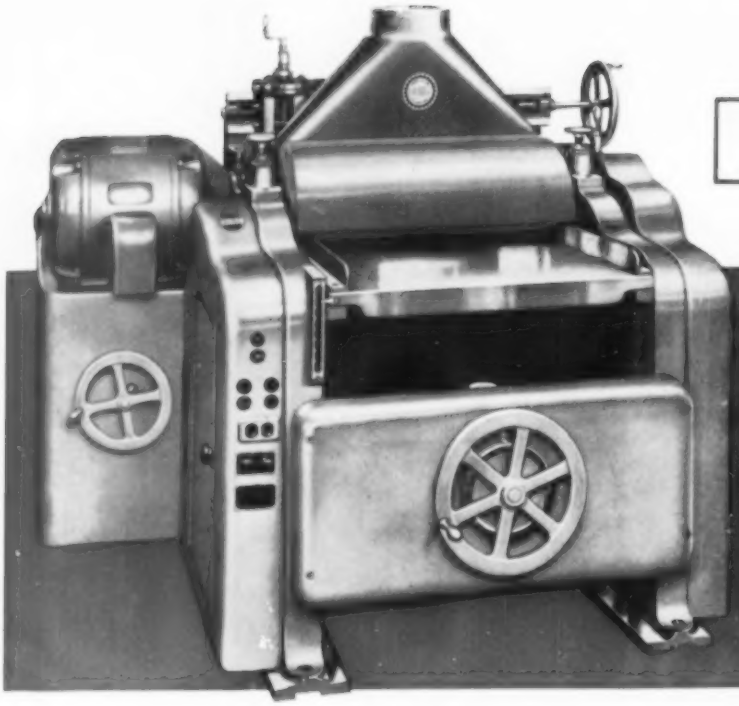
**Plastic Laminates**
**Conveyorization**
**Safety Check List**
**New Products**
**Buyers' Guide**

*FEATURES:*

- **How to Spur Particle Board's Use**
- **Research Can Insure Wood's Future**
- **Box Plant Success Key**
- **Wage Incentives—Pitfalls to Avoid**
- **Production Ideas—Trends—New Products—WOOD Salute**



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BUSS planers have an exceptionally heavy and absolutely rigid built-in grinding rail to insure perfect parallelism with the cutterhead. This, together with the design of the grinding and jointing wheel, permits quick and thoroughly accurate sharpening of either carbide or steel knives. BUSS cutterheads are larger than those used in other planers. They are dynamically and statically balanced, mounted in large pre-loaded ball bearings. Extra heavy bearing housings provide the rigidity and vibrationless operation so essential for high quality work.

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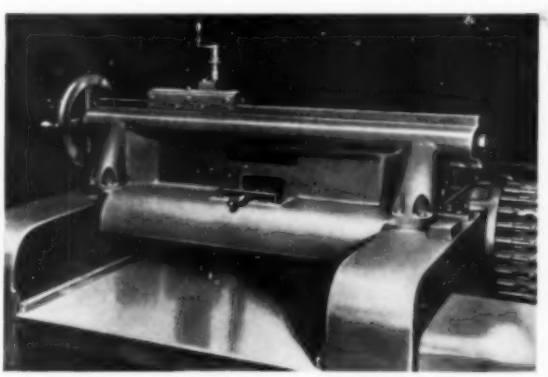

This heavy grinding and jointing bar, cast as one unit, is absolutely rigid.

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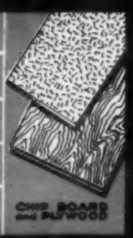
Use Reader Service Coupon on Page 147.

# RESIN ADHESIVES by Catalin

. . . set the highest standards for **QUALITY, ECONOMY and UNIFORMITY**

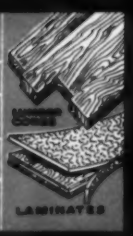
## • UREAS

| formula | type | solids | use | for specs |
|---|---|---|---|---|
| 802 | liquid | 46% | hot & cold press | AN-C-8, MMM-A-188, CS35-56 |
| 804 | liquid | 51% | hot & cold press | AN-C-8, MMM-A-188, CS35-56 |
| 813 | liquid | 65% | hot & cold press | AN-C-8, MMM-A-188, CS35-56 |
| 823 | liquid | 60% | hot & cold press | AN-C-8, MMM-A-188, CS35-56 |




## • MODIFIED UREAS

| IMPROVED WATER RESISTANT | | | | |
|---|---|---|---|---|
| formula | type | solids | use | for specs |
| 8000 | liquid | 60% | hot & cold press | MMM-A-188, CS35-56 |
| **CRAZE RESISTANT TYPE** | | | | |
| 8008 | liquid | 60% | intermediate & cold press | MMM-A-188, CS35-56 |




## • RESORCINOLS

| formula | type | solids | use | for specs |
|---|---|---|---|---|
| 728 | liquid | 57% | hot & cold press | MIL-A-397B |
| 731 | liquid | 55% | hot & cold press | MIL-A-397B |
| 738 | liquid | 56% | hot & cold press | MIL-A-397B |

## • PHENOLICS

| formula | type | solids | description |
|---|---|---|---|
| 9068 | liquid | 66% | Fast-curing water-soluble resin for particle board. |
| 9297 | powder | — | Fast-curing resin for increased flexural strength and moisture resistance, used for molded shapes of wood flour and particle board. |

Since the introduction of resin adhesives, a little more than a quarter-century ago, Catalin's ability to develop and deliver the most modern types of resin with absolute uniformity . . . batch after batch . . . month after month . . . has won the highest regard of woodworking production personnel.

The versatile adhesives listed here, together with Catalin-developed accelerators, because they establish superlative levels of dependability, quality and economy, have found wide acceptance for both hot and cold press woodworking operations and products. Catalin field representatives are qualified to assist you in adapting these formulations to your specific requirements.

Fast deliveries from three strategically located plants in the East, Midwest and South — Fords, N. J., Calumet City, Ill., and Thomasville, N. C. — are a feature of Catalin's unsurpassed service.

Write for your free copy of "Catalin Adhesives," which describes all the types Catalin produces and contains a special section of practical hints on the successful use of urea resin adhesives.

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*Whitney*

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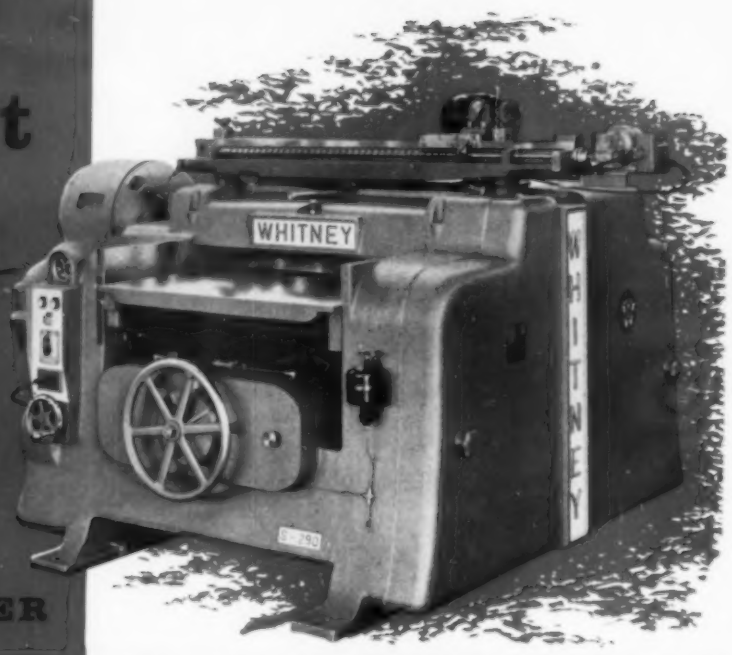


**Now available with all modern features including:**

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For close tolerance planing . . . at high rates of feed . . . the Whitney S-290 is your best buy. Whitney's up-to-the-minute design, expert workmanship and long experience in building planers combine to give you the best in planing . . . at lowest cost.

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Built in 11 widths, 24" to 44". Choose the size that best meets your needs.

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# WOOD & WOOD PRODUCTS

WOOD SALUTES Dr. A. J. Stamm

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NOW—FROM
REICHHOLD...

# GLUE BY THE ROLL!

# NEW WAY TO MAKE PLYWOOD WITHOUT GLUE ROOMS AND GLUE SPREADERS

**PGL** is the popular name for this new Reichhold product. That's short for "paper glue line." In effect, glue-by-the-roll, PGL consists of a cellulose carrier sheet impregnated with phenolic resin. You cut the sheet to size in the same way you do plastic overlay materials. Or you can use the continuous sheet as it is supplied for "automating" your plywood layup. In hot pressing, the resin remains on the glue line, where it's needed for maximum efficiency with minimum waste: eliminating uneven glue spreads, glue wipes, and bleed-through.

With PGL, panels can be pre-assembled, then pressed when convenient. PGL will tolerate higher moisture content veneers and hence help solve the age-old problem of blistering.

The potential of this modern glue-by-the-roll is tremendous. While film glues have been used sporadically for many years, Reichhold research has now come up with the basic improvements that were needed to make the product practical for standard plywood production. Reichhold PLYOPHEN PGL is faster curing, more economical.

Reichhold has successfully tested PLYOPHEN PGL in a wide variety of important bonding applications. If you would like detailed information on these applications, write to **Reichhold Chemicals, Inc., P. O. Box 3547, Seattle 24, Washington.**

*Creative Chemistry ... Your Partner in Progress*

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Synthetic Resins • Chemical Colors • Industrial Adhesives • Phenol
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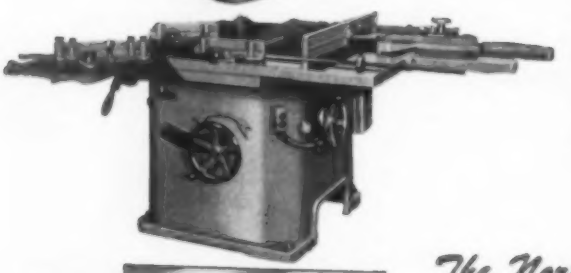
# MODERN Woodworking's Workhorses

SO VERSATILE **they pay for themselves in a hurry!**

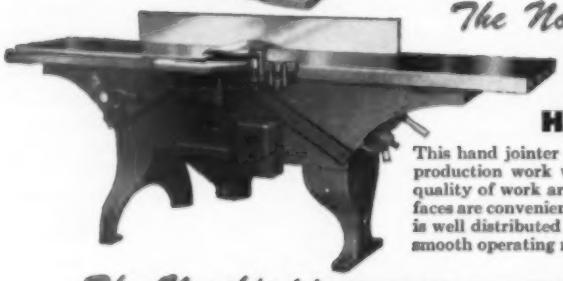
SO DEPENDABLE **they deliver years of trouble-free service!**



## *The Northfield* NO. 4 VARIETY SAW

**Tilting Arbor Type**

The NORTHFIELD No. 4 Variety Saw is a carefully designed, quality machine with the latest features. It offers maximum versatility for all around sawing in any shop. In addition to wood it's adaptable for cutting light metals, plastics, etc. The table on the basic machine is 44" x 36" plus a 19½" extension for carrying the rip gauge table. One or more 12" table extensions can be furnished to increase table size. A rolling section table is also available. You'll like this machine for its versatility, heavy duty capacity, ease of handling, and speed with precision.



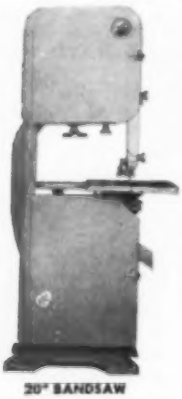
## *The Northfield* HEAVY DUTY HAND JOINTER

This hand jointer is designed and built for production work where accuracy and fine quality of work are essential. Working surfaces are convenient to the operator. Weight is well distributed to make a well balanced smooth operating machine.

## *The Northfield* MEDIUM DUTY HAND JOINTER

These jointers are built in the 8" and 12" width. They are designed for the most particular kind of work. They are compact, accessible and offer fine performance at reasonable cost.

**WRITE TODAY FOR LITERATURE AND PRICES**



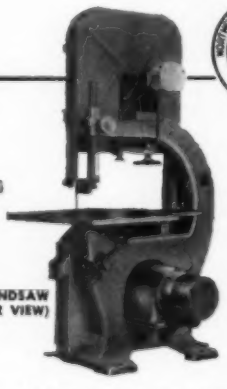
20" BANDSAW

# *Northfield*

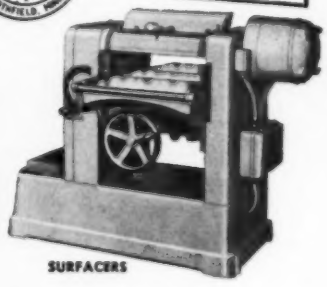
**FOUNDRY & MACHINE CO.**

NORTHFIELD | MINNESOTA

SHAPER



36" BANDSAW (REAR VIEW)



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# WOOD & WOOD PRODUCTS

# Trends in the NEWS

**MARKETS · DEVELOPMENTS · FUTURE**

## WOOD FINISHING PROGRESS REPORT

Now in your hands is the largest issue of WOOD & WOOD PRODUCTS ever published. This issue contains the Progress Report on Wood Finishing — the third in a series of 1959 Progress Reports which are designed to bring you up-to-the-minute on key developments in given fields.

Always one of the most interesting facets in wood products manufacturing, the subject of finishing today is attracting keener attention than ever before. This is a natural result of the tremendous surge in development of new finishes, new finish application tools and new, high-speed systems. Many common terms in finishing today were not even in the wood industry's vocabulary a few years ago.

The Wood Finishing Progress Report extends from page 39 to 105. Briefly, it contains: An overall look at wood finishing; A report on abrasives and a guide to proper abrasives; Trends in wide belt sanding; What's new and coming in finishes; Finishing methods; Infra-red drying; A series of case histories on in-plant techniques; Progress in veneers; Plastic laminates report; Conveyor developments; Safety; New and improved products and literature; and an alphabetized Buyers' Guide detailing products available from more than 150 manufacturers.

WOOD & WOOD PRODUCTS values your opinion on whether the Progress Reports have been beneficial in your business. And, we would like to know what subjects you believe should be covered in the future. Therefore, we have enclosed a self-mailer questionnaire card in this issue. Won't you please fill it in and mail it along to help guide our planning for next year? The card is between pages 44 and 45.

## LUMBER GAINS 12%

National production of lumber for the first half of '59 totalled 17,756 MM bd. ft., a 12% increase over the like '58 period, N.L.M.A. reports. Output for June was 11% over June, '58.

Redwood shipments for the first half were 23% over the like '58 period, California Redwood Assn. reports.

Weekly average of Douglas fir sawmill region production for July amounted to 87.3% of the '54-'58 average, down 18% from the production average for June.

## HOUSING STARTS DIP SLIGHTLY

Seasonally adjusted annual rate of private housing starts dipped slightly to 1,350,000 in July compared with 1,370,000 in June. Nevertheless, the July figure was the highest for this month in the past nine years. Average annual adjusted rate for the first seven months, according to Commerce Dept., was 1,380,000 — well above the year-ago rate of 1,015,000.

## ECONOMY OF WOOD

Use of heavy timber construction saved the taxpayers of Charleston, W. Va., $20,000 in construction costs on a new civic center, according to a N.L.M.A. report. Structure had been originally planned for steel framing which was dropped when advantages of laminated beams were explained.

## GIANT PREFABRICATOR EXPANDS

National Homes Corp., Lafayette, Ind. giant of the prefabrication industry, has merged with Knox Corp. and acquired five other prefab home manufacturing companies. J. R. Price, National president, said the acquisitions will boost the firm's '59 sales to $100 million and its output to 42,000 units. The companies, which will retain their corporate identities, include: Thyer Mfg. Co.; W. G. Best Factory Built Homes; Lester Bros., Inc.; Fairhill, Inc.; and Western Pacific Homes, Inc. The move gives National manufacturing facilities within a 200 mile radius of all major markets east of the Rockies.

## WHAT'S N.W.P.P. DOING?

Here's what the National Wood Promotion Committee is doing: (1) Got Southern

Cypress Mfrs. Assn. to sign up, bringing related association support to a commendable 100%; (2) Is planning a 10-year program to put wood promotion on a par with competitive materials promotions; (3) Re-hired the same ad agency for the coming year; (4) Plans to boost spending for advertising space in key magazines; (5) Will produce a movie for TV to tell the story of wood schools to the public; (6) Will produce a movie to tell the story of wood schools to school boards, etc.; and (7) Opened a new field office in Denver bringing the total number of such offices to eight.

LOWER WOOD FIRE RATES

There's a noticeable trend by the states to reduce fire insurance rates for wood school buildings (that use modern laminated beams, for example) ranging from 35 to 60%, N.L.M.A. reports. Broader education on factors like "resistance to structural collapse, slow combustibility" is paying off.

Tests at the Forest Products Laboratory revealed that solid wood flush doors, without fire retardant treatment, have an effective fire resistance of 30 minutes. Tests were made for the National Woodwork Mfrs. Assn.

FURNITURE PICTURE GOOD

"The six months' picture on two of the (furniture) industry's best barometers — orders and shipments — is most encouraging when compared to '58," N.A.F.M. states. The record on shipments for '59 as compared to '58 is: Jan. +10%; April +12%; and May and June +13%. Orders have fluctuated a bit at a level 18% above '58, said N.A.F.M.

Seidman & Seidman report: "In June, '59, the wood household furniture industry continued to improve its record in comparison with prior years, exceeding the '58 recession year in all phases of its activity. Except for shipments, the June '59 accomplishments surpass those of June in the all-time high year, '56. June shipments were 17% greater than those of June, '58, but lacked 3% of reaching the high mark set in '56."

FOREIGN TRADE IN IDEAS ONLY

Wood Office Furniture Institute members have developed a switch in the foreign trade pattern. Rather than shipping furniture into each other's nations, the American and Canadian members are trading their design ideas. They also say they've been trading production ideas for the designs picked by their co-members. Soon to start is a program of exchange visits. So far, according to W.O.F.I., the cooperative twist in foreign trade is working admirably.

PULP INDUSTRY GROWS

Over 20 million cords of pulpwood were harvested in the South in '58, U.S. Forest Service reports. Output represents a 2% increase over '57. The South now produces 58% of all U.S. pulpwood, and five new mills are planned.

GAMMA RAYS FOR WOOD TESTS

Nuclear Science and Engineering Corp., Pittsburgh, Pa., has developed a way to test the soundness of railroad ties by bouncing gamma rays off the ties' interiors. The sounder the tie, the more gamma rays that bounce back to the counter. System may work for laminated beams or even on trees still in the forest.

MORE SCIENTIFIC FORESTRY OUTPUT

More timber was harvested under scientific management from national forests in the fiscal year '59 than ever before, USDA reports. The cut of 8 1/3 billion bd. ft. for '59 was 30% over '58.


## THANK YOU!

**To Our Advertisers:**

**Thanks for making this the biggest single issue of WOOD & WOOD PRODUCTS published to date!**

**To Our Readers:**

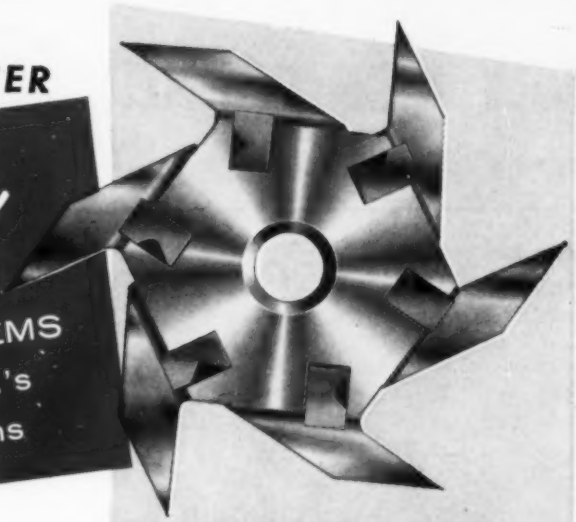
**Thanks for making our fine, healthy progress possible by your confidence and support. We pledge our continued efforts to reciprocate by making every issue better than the one before in terms of helpful service to you.**

**The Staff**
**WOOD & WOOD PRODUCTS**

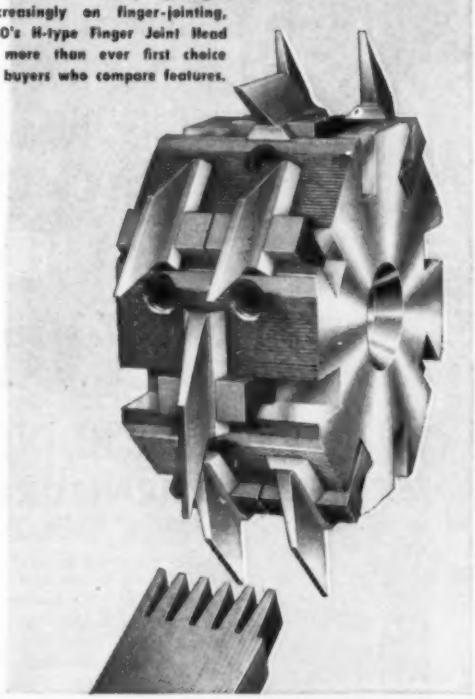
NOW . . . FASTER, BETTER

# Service

ON YOUR
CUTTER HEAD PROBLEMS
with J&O-R. Hoe & Co.'s
combined organizations



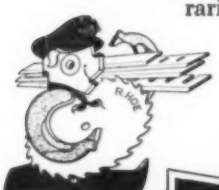
With the industry spotlight increasingly on finger-jointing, J&O's H-type Finger Joint Head is more than ever first choice of buyers who compare features.



**Something important to YOU** has happened in the cutter head field! Now, more than ever, it will pay you to take another look at the service and know-how you are *now* getting, then stack that up against what you can get from JONES & ORTH . . . with the recently-added nation-wide facilities of R. HOE & Co., America's oldest saw manufacturer.

**J&O service to buyers is now** more convenient, faster, better! Every R. HOE & Co. branch is now a factory warehousing point for J&O Cutter Heads. Every R. HOE & Co. dealer can now also serve you on J&O Cutter Heads (more than tripling our dealer organization!) The services of 25 factory-trained R. HOE & Co. sales engineers are now available for direct help on cutter head and related wood-cutting problems. Factory stocks have been expanded, customer service on orders speeded up!

**We're geared to your needs,** your problems and rarin' for a chance to *show* you what we can do for *you! Now's* the time —phone, write or wire us!



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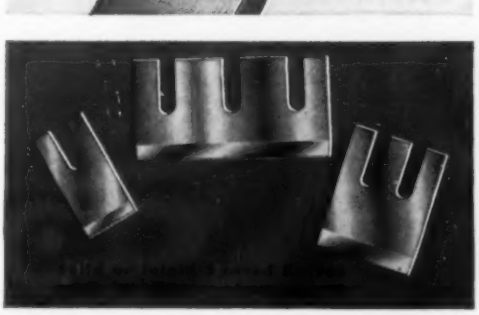

CHISEL TOOL SAWS • SOLID TOOTH CIRCULAR SAWS • BITS AND SHANKS • FILES
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SAWS AND TOOLS • CUTTER HEADS • SPECIAL FORM KNIVES • MACHINE KNIVES

# DRY KILN CORNER

By Ralph W. Shepherd

### Kiln Designing

**Question:** We want to modernize our old natural draft kilns. There are a few men in the area who tell us that we can buy a controller and some fans and install them ourselves, thereby saving money. These men have done the same thing at the factory they operate and seem to have good results with their kilns. Others have talked against this. What would you suggest?

L.K.M.-Tenn.

**Answer:** Our recommendation is against doing anything of the sort. It is true that fans and controllers with some heating coils make a dry kiln, but the location, power and use of these things are what makes the kiln operate successfully or indifferently. I have recently seen a number of locally designed and built kilns and invariably there has been some troublesome point in the operation which would not have been present in the properly designed kiln. The men who design kilns for a living have learned, perhaps the hard way, the need to balance the various elements going into the successful kiln.

Should I
Buy Kilns?
What Size?
What Type?
What Cost?

STANDARD
solved all these problems for
TECHNICAL FURNITURE COMPANY

When Technical Furniture Company first built its new plant in Statesville, North Carolina, our engineers were called. It was decided then to install one Standard Prefabricated Kiln, 20' wide x 40' long with doors at both ends. Since that time, Technical has twice re-ordered, and now has three Standard Prefabricated Kilns in operation. All controls are completely automatic, located in operating room at side of No. 1 kiln along with boiler furnished by Standard.

We'll gladly provide your company with sound engineering advice at no obligation. Write for FREE Equipment Catalog and Prefab Kiln Brochure.

Manufacturers of Internal Fan Kilns
STANDARD DRY KILN COMPANY
Engineers and Manufacturers Since 1887
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STANDARD HAS THEM ALL
• Prefabricated Kilns
• Package Loaded Kilns
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OTHER QUALITY STANDARD PRODUCTS
Lumber Stackers
Dry Kiln Doors
Transfer Cars
Lumber Lifts
Kiln Trucks
Moisture Registers


### Bending Beech

**Question:** We bend oak and maple backposts for chairs with very little trouble but lose so many in beech that we have stopped trying to use the wood. What could be the reason for these losses?

R.S.-Ky.

**Answer:** There probably are several reasons for your losses when using beech and the chances are that they all come from drying. In the first place you should not try to get bending material from air dry lumber. Buy your lumber for backposts green from the saw, cut your backposts, and store them under a roof or in a tightly covered pile. Beech is very bad to season check and should have more care than most woods. Season checks are one reason for breakage in bending and care should be taken to prevent or reduce the checking while drying. That is the reason for recommending that posts be cut from green lumber. The smaller dimension of a post will check much less than a board.

In stacking for drying, care must be taken to prevent stacking so close that the circulation is too slow through the stack, or so rapid that checking will result. Do not try to bend when too green. The best moisture content is in the area of 12 to 15%. Over this percentage, there is too much danger of checking when in the presses for setting and drying. Steaming also must be watched to prevent over steaming —another cause of checking.

**Be sure to pass this issue along to your dry kiln operator and mark this page—devoted to readers' problems in kiln drying and related seasoning questions—for his special attention. If you—or your dry kiln operator—have a problem in any phase of this complex subject, send it to WOOD & WOOD PRODUCTS, 59 E. Monroe St., Chicago 3, Ill. Our experts will help you!—*The Editors.***

# Make this simple Glue Test...

**Convince yourself that National Casein's FA-300 is the preferred gap-filling, non-craze urea resin glue for plastic top and hardboard-to-wood gluing**

Take two Dixie cups. In one put a half measure of ordinary Urea Resin glue. In the other, a half measure of National Casein's FA-300.

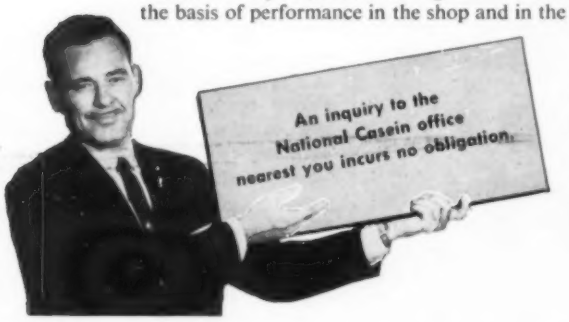
After they have set, note how the ordinary Urea Resin becomes brittle and cracked, over a period of a couple of weeks, almost to the point of disintegration.

In contrast, note how National Casein's FA-300 retains its original form.

National Casein's FA-300 Modified Urea Resin is a non-craze, gap-filling glue ideally suited for plastic top gluing, hardboard to plywood gluing, and certain special plywood laminating jobs. It is widely used in top quality door manufacturing plants.

In high frequency gluing—where complicated clamping devices are used—where close tolerances are difficult to maintain—and for curved work—National Casein's FA-300 has proved to be the difference between a good job and a reject in many cases.

You'll find any National Casein glues—resin or casein—best by test, preferable on the basis of performance in the shop and in the product.




*You be the judge. Write for a free sample of FA-300. Make the "Dixie Cup Test" with any ordinary urea resin you have on hand.*

**National Casein**

# PRODUCTION IDEAS

**Men • Materials • Methods • Machines**

### Dispersing Board Binders

NEW METHODS of dispersing binders or additives in dry fibers and larger particles in the manufacture of various types of dry process boards have been developed by a wood processing equipment manufacturer.

One method employs single revolving disc attrition mills equipped with a specially designed screw feeder with a hollow shaft. One or more fluid materials can be introduced through the shaft into the central chamber of the mill where the mixing action takes place, assuring improved uniformity of end product.

The single revolving disc attrition mill is used primarily for intensive mixing and dispersion and is normally used after the original stock has been reduced to fibers or particles and has been dried.

A second method uses double revolving disc attrition mills which will simultaneously reduce wood chips or residues to fiber or particles while dispersing fluid binder materials. Additives may be introduced at the feed inlet or through the special drilled shaft.

Both units are available in a wide range of sizes and capacities. **(901)**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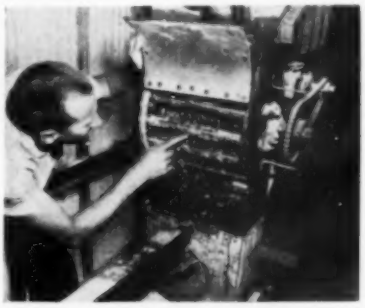
Dust & Fume Control CATALOG

52 pages showing 60 different installations in major industries

See how Kirk & Blum engineers the best suited dust and fume control system for each particular application.

See how Kirk & Blum provides one source for the complete operating system—design, fabrication, installation—*one* undivided responsibility. Write for your copy today.

**THE KIRK & BLUM MANUFACTURING CO.** 3192 Forrer St., Cincinnati 9, Ohio

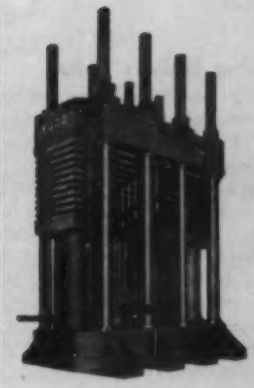
**IRON CONTAMINANTS cling to magnetic tubes of rotating grate installed in discharge pipe of dust collector at American Furniture Co. (Photo courtesy Eriez Mfg. Co.)**

### Removing Ferrous Particles

A STRATEGICALLY LOCATED installation of a single non-electric magnetic rotating grate is credited by American Furniture Co., Inc., Martinsville, Va., with protecting valuable machinery, not only in their own plants, but in those of their customers as well. The unit is installed in the discharge pipe of a dust collector handling wood particles which are later processed into particle board. By removing any nails, screws or other tramp iron from the wood, the finished board is made free of these hazardous contaminants with the result that the company's saws and planer knives—and those of their particle board customers—are effectively protected from damage.

The unit is composed of multiple V-powered magnetic tubes arranged as a cylindrical grate which, revolving slowly in the stream of material, searches out and secures all ferrous particles. The rotating action also prevents clogging or bridging and assures

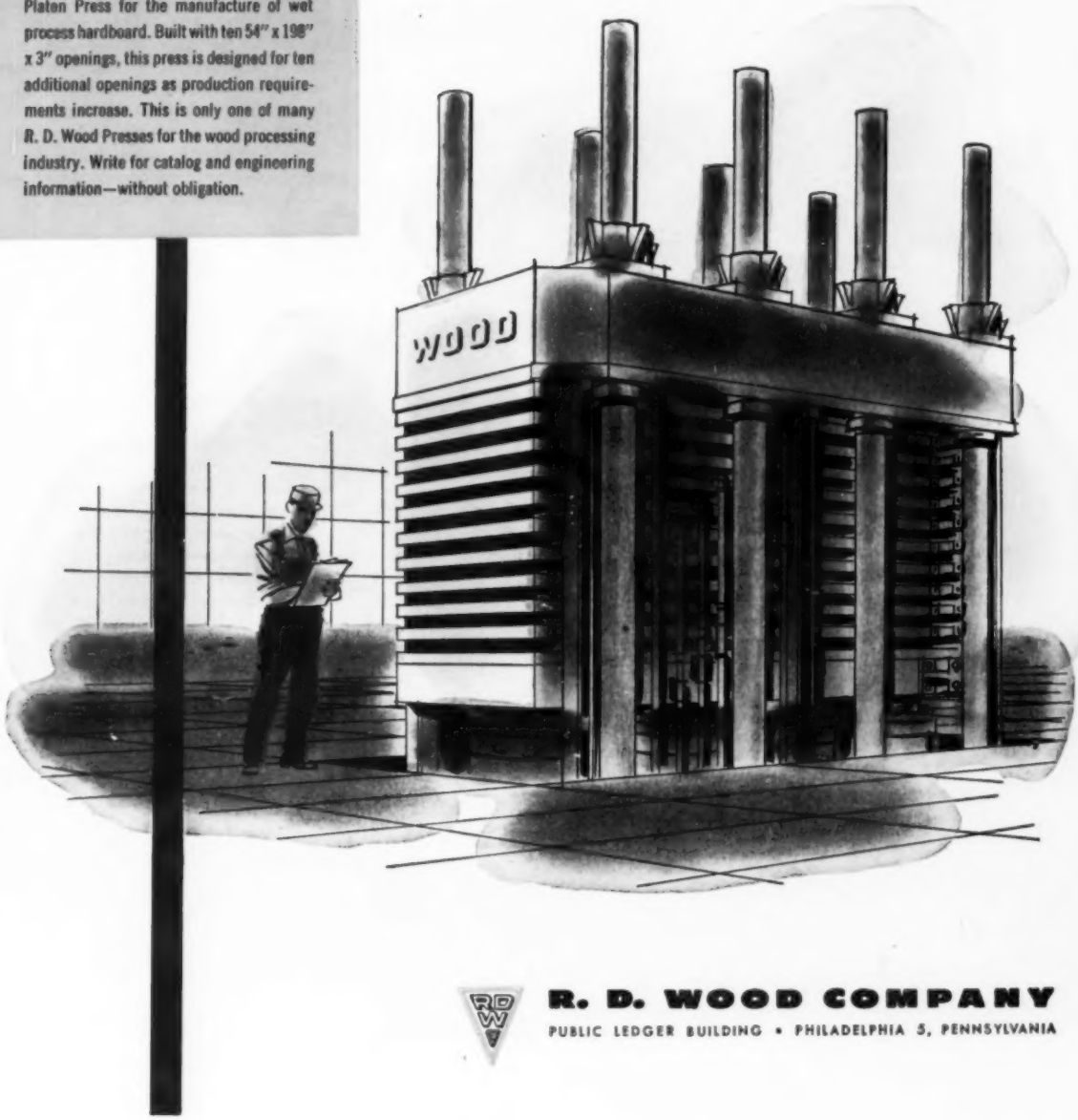
**Editor's Note**—*For more information on above or following items which carry numbers, circle corresponding numbers in coupon on page 147.*



3,675-ton Self-contained Multiple Opening Platen Press for the manufacture of wet process hardboard. Built with ten 54" x 198" x 3" openings, this press is designed for ten additional openings as production requirements increase. This is only one of many R. D. Wood Presses for the wood processing industry. Write for catalog and engineering information—without obligation.

## *Twice the price won't buy a finer press*

Watch an R. D. Wood Press at work and you'll see why. Here is dependable performance—smooth, precise operation; high production; minimum downtime for maintenance. And here, too, is long, trouble-free service. Reason: every R. D. Wood Press is the product of sound design, select materials, skilled craftsmanship. We build our presses to be best—and nothing less. You can't buy a finer press—even at twice the price!




**R. D. WOOD COMPANY**

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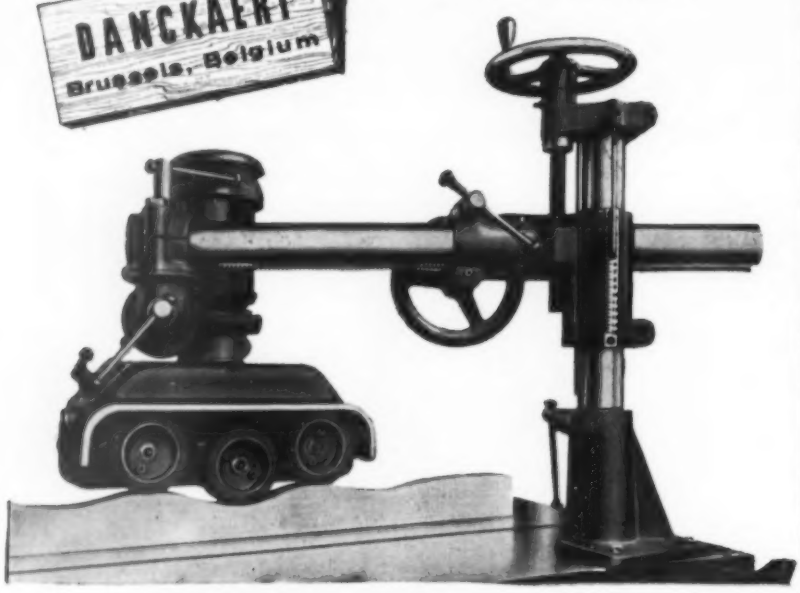
Use Reader Service Coupon on Page 147.

# Danckaert's Special Offer

DANCKAERT
Brussels, Belgium

**Valid for 60 days only!**



*Complete* **AUTOMATIC FEEDER**

Biggest time and money saver
Adjustable in any position on any machine
Eight rates of feed: from 6 to 100 ft. per min., selected instantly.
Two-speed motor
4 speed gear box, operating in an oil bath
Spare parts, direct from Atlanta

OUR SPECIAL PRICE IN ORDER TO INTRODUCE
OUR MACHINERY IN THE AMERICAN MARKET

**$560** — **delivered in your factory, ANYWHERE IN THE U.S.**

**ONE FULL YEAR GUARANTEE**

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Woodworking Machinery Co.
447 Marietta St., N.W.
Atlanta 13, Ga.

States still open for exclusive agencies:
Arkansas, Mississippi, Louisiana, Kentucky, Ohio,
New England, Michigan.

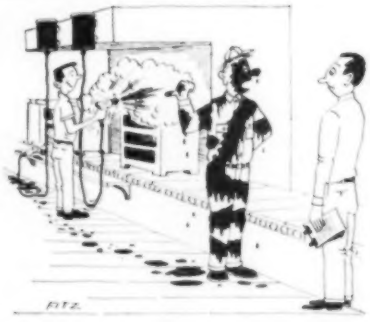

a smooth, even flow of the cleaned material. (902)

### Splicing Endless Belts

ENDLESS LEATHER BELTS are required for some machines where the vibration of belt hooks and other types of fasteners would affect the quality of work produced. While commercial belt cements are available, a maintenance department foreman glues endless leather belt splices with an adhesive he prepares himself. He first dissolves a high grade animal glue in water .(1 part glue to 4 parts water) heated to about 140° F. until properly cooked. A separate solution of 1 part tannic acid dissolved in 10 parts water is then prepared adding a few drops of glycerine to help dissolve the acid. This solution is heated to the glue mixture temperature and added to it. The combined materials continue to be heated until the solution takes on a stringy consistence. The result is said to be a strong but elastic splice which levels out thus preventing bumps which can cause troublesome vibration.

### Grooving Furniture Posts

A SOUTHERN FURNITURE PLANT uses a special grooving attachment for grooving furniture posts on two adjacent sides. This attachment carries a horizontal grooving arbor and mounts a grooving saw which overhangs the shaper table. It is possible to set the arbor in front, in back, or opposite the shaper spindle. The attachment is set up to pass the post through the grooving saw. When the preset length of cut has been reached, the forward end of the post contacts a trip finger which throws a toggle joint. This causes a weight on the rear end of a fulcrum arm to lift the top grooving cutter and releases the post for removal. All that is required to reset the device for the next cut is slight pressure on the hand knob.



*"Either you switch that new man to another department—or I quit!"*

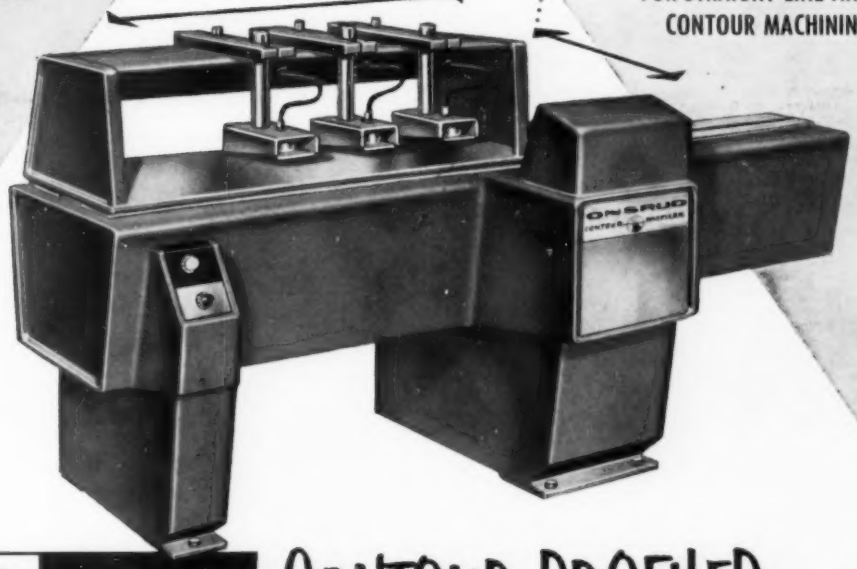
# Here it is!

woodworking's newest machine . . . to replace hand shapers

♦ all the PRODUCTIVITY and SAFETY of an automatic shaper . . . with all the SIMPLICITY in SET-UP of a hand shaper

♦ straight line work feed and automatic return

♦ template controlled in-and-out cutter head feed FOR STRAIGHT LINE AND CONTOUR MACHINING




ONSRUD CONTOUR PROFILER

The new Onsrud Contour Profiler provides 2½ to 5 times the production speed of a hand shaper . . . the ease and simplicity of a hand shaper set-up . . . PLUS the machining accuracy and safety that only an automatic machine can give. Climb cutting cutter rotation results in work smoothness equivalent to sanding. Here's the Onsrud machine that's so new and so productive that fourteen companies have already placed orders based only on blueprints and prototype performance. What is typical production? For drawer rails, production time was reduced from 28 hours to 4½ hours. For back posts, production time was reduced from 10 hours to 1½ hours. For stretchers, reduction was from 46 hours to 9 hours.

Let us give you all the facts and a production estimate on your own parts. Save money on any production run, since templates are even easier to make than hand shaper forms. Write or call Bob Miller, Sales Manager. Your inquiry is cordially invited.

**ONSRUD MACHINE WORKS, INC.**
**7720 LEHIGH AVENUE • NILES 48, ILLINOIS**
**(Suburb of Chicago)**
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# On time on FIRESTONES!

## They cut costs on building materials deliveries

Whether you operate one truck or twenty trucks, count on Firestone Rubber-X, the longest wearing rubber ever used in Firestone truck tires. It's yours with every Firestone, for extra trouble-free deliveries and lower truck tire costs.

And along with new long-wearing tire rubber, all Firestones bring you Firestone S/F (Shock-Fortified) cord for still more stamina and dependability. No wonder more and more truck owners like yourself find it good business, always, to buy Firestones when replacing old tires—and to specify Firestones on all new trucks. Ask about them today at your nearby Firestone Dealer or Store—your headquarters for fast, reliable service!

TRANSPORT SUPER ALL TRACTION

LOOK FOR NEW LOW COSTS PER MILE WITH LONG-WEARING FIRESTONE TRUCK TIRES

Firestone

BETTER RUBBER FROM START TO FINISH

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**Destination, your plant.** In the quiet gray light of dawn a Diehl service man climbs aboard one of Diehl's "flying workhorses." He and his fellow Diehl troubleshooters log thousands of air miles a month, winging replacement parts and expert service to Diehl machines in plants from coast to coast. There's no time for downtime with the Diehl service man only hours away. Keep this extraordinary service in mind next time you're in the market for woodworking machinery.

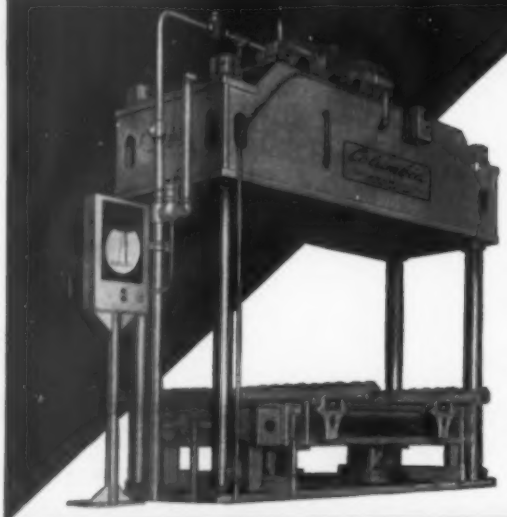
*Standard of Comparison in the Woodworking Industry*

THE G. M. DIEHL MACHINE WORKS, INC., Wabash, Indiana

**Diehl**



Use Reader Service Coupon on Page 147.

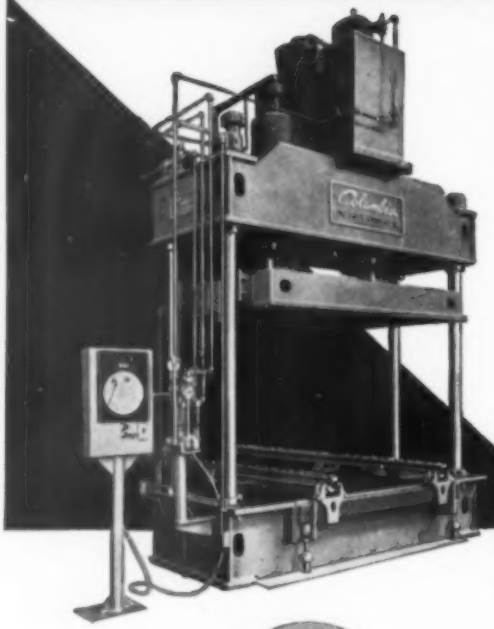


## UPSTROKE

*210-ton capacity press furnished with crown-mounted pumping unit as standard. Models over 210-ton capacity have floor-mounted pumping unit.*

# Columbia HYDRAULIC COLD LAMINATING PRESSES

**for VENEER, PLYWOOD, PLASTIC, RUBBER, FIBREBOARD and PAPER PRODUCTION**



## DOWNSTROKE

*fast press requires no special costly foundation, all downstroke models have crown-mounted pumping unit.*

For profitable production, you can really "put the pressure on!" with a Columbia Cold Laminating Press . . . known for reliable, low-cost operation.

**OUTSTANDING CONSTRUCTION AND OPERATING FEATURES**

- Pressures to 200 p.s.i.
- Platens 30" x 60" and larger
- Maximum strength, minimum deflection
- Floor space-saving design
- Trouble-free hydraulic system
- Long-life packing, dependable pumps
- Labor and time-saving loading and unloading
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TIME-PROVED Columbia HYDRAULIC PRESSES INDUSTRY-APPROVED

Whether your requirements are routine or special, Columbia Engineers can suggest equipment particularly suited to your needs . . . back up their recommendations with case history proof of Columbia superiority.

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*THE LODGE & SHIPLEY CO.,*
*3075 COLERAIN AVE., CINCINNATI 25, OHIO*

**Lodge & Shipley** . . . your LODGE-ical choice in Hydraulic Presses, too!

*There's Extra Profit from Waste*

**when you use**

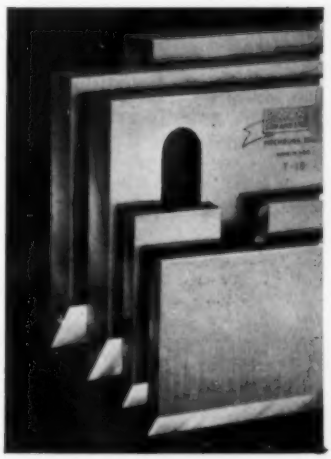
# SIMONDS

## wastewood chipper knives

Turning wastewood into uniform, usable chips — the kind that please pulp mills most and bring you the most in extra cash — is no problem with SIMONDS KNIVES on your chipper.

Why? — because these knives are made from Simonds extra tough T-18 Steel — steel that really stands up and holds a sharp cutting edge hour after hour producing cleaner chips with less wood dust or waste. This means they run longer between grinds, don't have to be changed as often and actually cost less in the long run.

So you benefit both ways — get better chips and cut your knife costs. The sooner you change to SIMONDS KNIVES, the sooner you'll pocket the EXTRA profit. All sizes and types for all machines.



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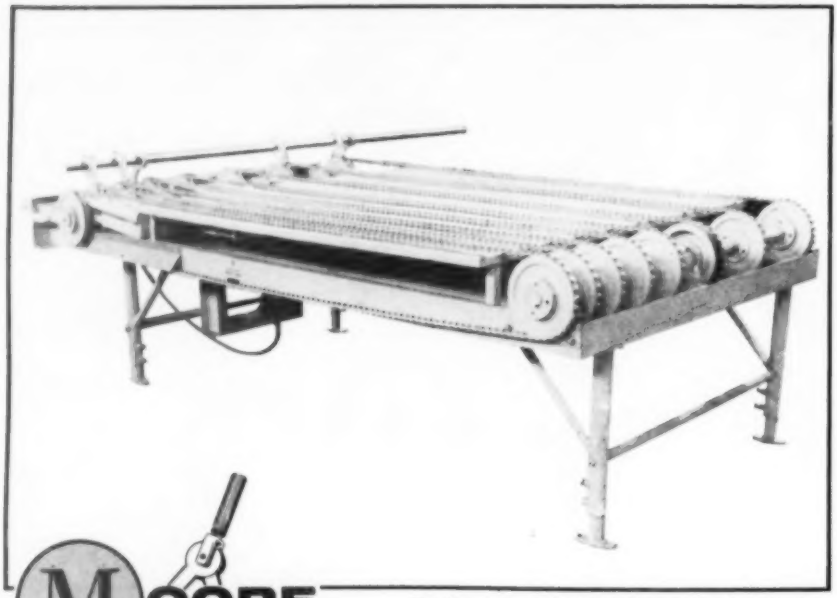
# Let Moore MOVE IT

**WITH TIME-SAVING CONVEYOR EQUIPMENT THAT REDUCES EXPENSIVE HANDLING COSTS.**



The Moore Cut-Off Saw Tailboy with adjustable legs and heavy structural steel framework.

**MOORE MODERN METHODS**

Moore Modern Methods can help you solve your production problems with up-to-date conveyor systems. Typical of the equipment used is the Moore Cut-Off Saw Tailboy. Its air-operated rolls automatically drop the lumber onto conveyor belts when the saw reaches the end of its cutting stroke . . . eliminating time wasting and expensive handling. The Moore Cut-Off Tailboy is complete with gauge bar, stops and detachable belts.

Write today for information or estimates on a Moore Conveyor System to fit your needs.

Garrison Machinery Co., Statesville, N. C. is exclusive dealer for Moore Rough Mill Conveyors in N. C., S. C., Va. and East Tenn.

- Stackers (Kiln Load and Unit Package)
- Unstackers (Rake-Off, Tilting and Drop Out)
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- Cabinet Dryers
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- Steam Generators
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- Kiln Check-Up Service Plan

**MOORE DIVERSIFIED PRODUCTS MEAN MORE PROFIT FOR YOU!**

# MOORE DRY KILN COMPANY

MOORE SINCE 1879

JACKSONVILLE FLORIDA · BRAMPTON ONTARIO · VANCOUVER BRITISH COLUMBIA · NORTH PORTLAND OREGON

World's Largest Manufacturers of Drying and Handling Systems for Lumber and Veneer

# National Forest Products Week Idea Revived

NEARLY three years ago—in November, 1956—WOOD & WOOD PRODUCTS launched a series of editorials advocating a National Forest Products Week. This month, at its annual convention in Duluth, Minn., the Concatenated Order of Hoo-Hoo, under the leadership of Jack S. Berry, chairman of the Hoo-Hoo International Wood Promotion Committee, is expected to take firm steps toward making "National Forest Products Week" a reality in 1960.

In originally presenting the idea for the industry's consideration, we pointed out: "Dynamic progress has been made in this field about which the public knows virtually nothing—and there's much more to come: New and revolutionary products . . . better ways to utilize more of the tree . . . startling combinations of wood and paper and plastics . . . a return to wood in many areas of construction where striking progress in laminating is crowding steel and concrete . . . new developments in plywood, hardboard, particle board, other wood composition boards . . . new chemicals from wood . . . new and better wood preservatives and wood finishes . . . new methods and machines for working wood, for converting scrap into salable products—in fact, a great renaissance of wood which the public is entitled to know about."

That was three years ago. Many of the promises cited have since been fulfilled, and others are coming along. There was no pipe dreaming there—yet, curiously, despite all our progress of the past few years, the public still doesn't know much about us or what we are accomplishing as an industry.

All the greater reason for an annual national event or program recognizing the importance of forest products and thus lending powerful support to the current National Wood Promotion Program. Our editorial hat is off to Hoo-Hoo for its willingness to take on the job, and we're ready to roll up our sleeves and help the cause along in every possible way.

Hoo-Hoo may well be the ideal sponsoring agency for a National Forest Products Week. Essentially, such an event, though it may be spearheaded by a Presidential proclamation, must be a "grass roots" program if it is to succeed. And we know of no more logical "grass roots" team than the members of Hoo-Hoo. They are manufacturers, distributors, retailers, conservationists, foresters—in fact, most of the elements that derive their livelihood from and have a stake in the products of our forests. If each member of Hoo-Hoo pitched in and did his bit locally under a simple skeleton plan nationally directed and co-ordinated, a big dent would be made in the minds of the public everywhere in behalf of wood and other forest products.

THINK what could be accomplished if annually, at the "grass roots" in every community where Hoo-Hoo has members, we could bring to the attention of all Americans the great asset we as a nation have in our forests and the progress we have made in conservation and replenishment of those forests through modern methods and enlightened management; the variety of useful products we derive, directly and indirectly, from our forests; the size and scope of the forest products industries and their importance in our national economy; and finally, what all of these things mean to the local communities and the people, the businesses and the institutions in them.

Such an annual national event, properly planned and organized, would go far toward unifying the many widely scattered elements of the industry. It would win greater recognition of the industry as a vital force in the national economy. It would contribute heavily to the further recovery and broadening of wood's markets. And in offering to spearhead the program, Hoo-Hoo deserves the active, enthusiastic support of all who have a stake in wood and other products of our forests.

Jack Koellisch

## "BUGS" OUT—BIG FUTURE

MOST OF THE "BUGS" have been worked out of particle board fabrication during the past five years. There are simple answers to the numerous problems that will always arise.

We are certain to see more and more development in this newest phase of our wood industry. Advances in adhesives, in surface coatings and in an improved end product are inevitable.

The most favorable future lies ahead for this relatively new industry. Its potential expansion through new developments in fabricating, processing and application is almost unlimited. The economics of its use and its acceptability have been proved.

The one need to come will be a greater and broader location of plant production to aid distribution. Freight costs from too great a distance could be the greatest retardant to more widespread use.

We sincerely hope that wood industry councils in each section of the country will study this situation to see if their area has an adequate source without need of paying shipping costs from thousands of miles away.—FRANK T. PARRISH.

# How to Spur Particle Board's Use Through Simplified "Specs"

**FRANK A. PARRISH, Heywood-Wakefield Co., offers management practical ideas to facilitate utilization of particle board with exposed surfaces, wood veneers, solid wood, plastic laminates, specialties**

THE GREATEST EXPANSION in all time of plant productive capacity and facilities for production of medium density particle boards (including flakeboards, splinter boards, shaving boards,etc.) has recently taken place. It has barely kept pace with the growing demand and use of this material for replacing corestock formerly made from solid edge-glued lumber.

The various requirements for use of particle board in varying styles and types of furniture can be generally grouped under five categories as follows:

1. *Structure board with exposed faces.*
2. *Corestock for veneered furniture and panels.*
3. *Structural core material for decorative and solid panel replacement.*
4. *Core material for plastic laminated panels.*
5. *Specialty type particle boards.*

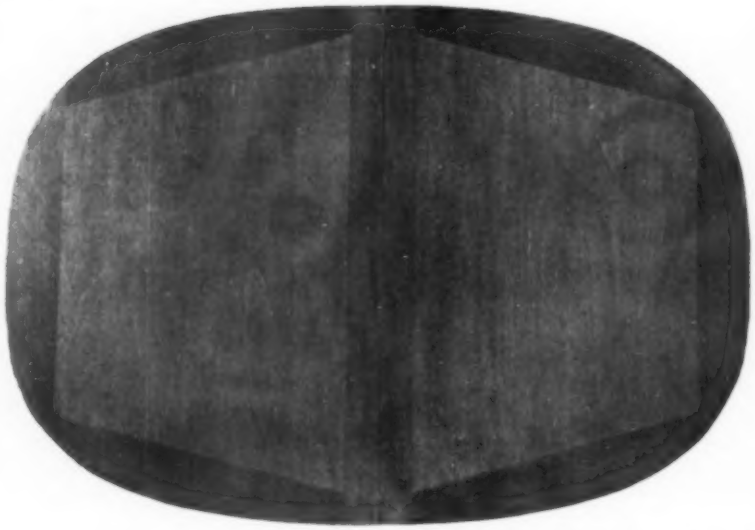


**TABLE TOP shows decorative solid wood edge banding and interesting joining methods**

### Exposed Surfaces

Numerous attempts have been made to use flakeboard fully exposed. A small amount of such exposed surface when stained or given a transparent finish is intriguing and interesting. A room full of it is just too monotonous. The result, little acceptance by the public on any large scale.

This, then, dictates painted surfaces. Here, smoothness of surface becomes a major requirement along with good machining qualities.

How should we set up specifications to meet the necessary requirements for this type of simple, low-cost furniture usually found in the unpainted or "finish it yourself" bracket?

First, what have been the accepted characteristics of the material previously used? Compare both for quality of surface for painting, freedom from warping, ease of gluing and machining, screw-holding power, and other usual qualities.

Assuming we can meet or better the requirements in each instance, the final acid test is whether it will be equally well accepted by the public. Naturally, comparative cost must be considered. Here is where often a high waste factor resulting from cutting to finished sizes from the standard press or panel size is realized.

Newer particle board plant installations are putting in 5 ft. wide presses which meet the furniture requirement for 19-20 in. case widths or are setting up facilities for low-cost ripping to size and regluing. This is probably the only answer in the long run as so many varied sizes are in demand. It also follows the growing practice of "cut to size" dimension material to facilitate production.

One mounting problem or requirement that particle board must meet stems from the current trend of furniture (particularly cases) to be longer than ever before. Dining and bedroom case pieces today are made in 60, 72

and even 90 in. lengths. While this is good in one way, in that long lengths are more economical from particle boards than from the harder-to-get long, clear lumber cuttings, nevertheless the stiffness factor becomes paramount, particularly in exposed face usage.

Panels must be carefully checked to see that structurally they will be equal in rigidity to the solid wood core or plywood they are replacing. This requirement is more difficult to meet on exposed face panels than on the laminated faced type.

A change of design of the furniture with additional center leg support or center internal support rails is very apt to be necessary to allow the particle board to meet the stiffness requirement that will guard against sagging tops. As yet, man has been unable to make a product that, weight for weight, can equal the stiffness of wood as it grows.

Screw-holding power requirements are apt to be greater at times than some particle boards seem to offer. Here, again, it may be necessary to change the type screw (or thread) to get the equal of what we have accepted in wood. Generally, screw-holding ability of particle board will equal or exceed end grain of softwood with regular standard thread wood screws.

A change to a full rolled thread will increase holding power in particle board to equal softwood side grain holding power and to meet average end and side grain holding power of hardwoods.

### "Under the Skin"

At this writing no accurate figures are available as to the footage or percentage of total particle board now being used as corestock to replace lumber in veneered furniture. Conservative estimates place it at nearly half the total going into all furniture of all specifications using particle board.

Earlier almost any type surface was acceptable, even the coarsest splinter board, as a cross banding was applied before the thin 1/28 in. face plies. This 3-ply construction eliminates telegraphing and builds added stiffness and rigidity into the panel, but it is more costly in most cases.

Recently a swing has been evidenced to 3-ply construction, eliminatating cross banding. This demands a better grade of particle board panel in both face surface and rigidity, as the thin 1/28 in. face alone adds little to the core strength.

A new practice of edge-banding the cores before face veneering has sprung up. This uses a "floating" edge band that is merely stapled to the core, but in the veneering process the adhesive forces its way into the joint and locks the core and banding into permanent position. While not the best, this is an economical construction. It requires uniform thickness of core and matching planing thickness of banding.

We can sum up the specification requirements for particle board cores for this general classification (with exception of the last mentioned method) as requiring only average quality of chip or surface, average freedom from water absorption (or warp resistance) and normal uniformity of thickness. In other words, many variations of core are possible when used "under the skin," particularly in 3-ply construction.

### Particle Board and Solid Wood

The specification requirements for a particle board core for a decorative and solid panel replacement material are much higher. All decorative edge banding is of solid lumber and is glued to the core under pressure after the core has had face and rear veneers applied. This joint, then, must be as strong as the wood across grain adjacent to the joint. Also, the core with its applied faces must be as strong as the joint and stronger than the wood.

In other words, pressure exerted on test strips (simulating stresses in final products) must show breakage in the wood before either the joint or the panel let go. In this construction the first and foremost requisite is high edge gluing strength.

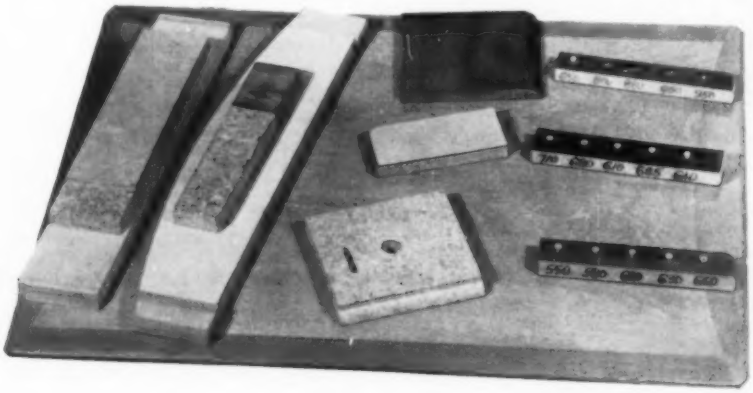
Generally this requires particles with fibres long enough to have a tight "bite" or "lock" into the panel beyond just the glue joint area. Almost the best possible edge-to-edge glue surface is needed to build up sufficient strength. Uniformity of chips or particles as well as resin content plays an important part in this requirement.

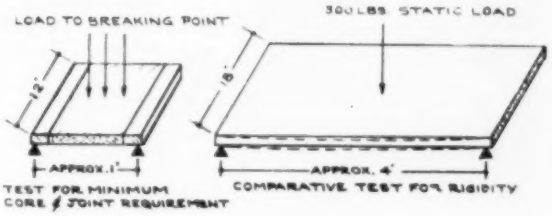
Since this specification is only 3-ply, (with heavier 1/16 or 1/20 face plies), a fairly smooth core surface is necessary. Uniformity of core thickness to within a maximum of a few thousandths of an inch is required because a heavier sanding is necessary to bring the banding into alignment with the face of the panel, and excessive variation in core thickness could lead to sanding through on the surfaces that must be brought into line.

Only normal screw-holding power is necessary here, as most joining or attaching is done through the solid banding.

The big feature of this class of particle board use is that it enables decorative solid wood banding to be used. Because the core is inert there is ab-

*Continued on page 110*

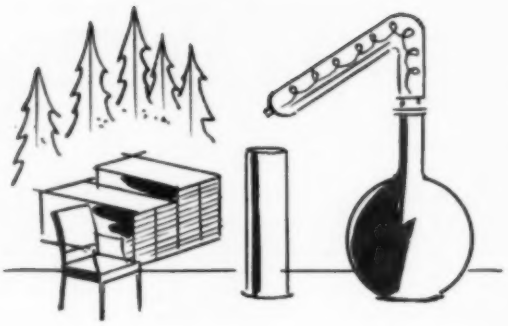





**TEST SAMPLES: (left) Particle board samples before tests, (center) examples of ease of machinability, (right) results of screw holding test. Sketch at right shows minimum core-joint test**

# Research

## Can Be Fountainhead to Insure Wood's Future



**By Lt. Gen. JAMES M. GAVIN**

RESEARCH IS THE KEY to economic growth of our industry and country.

Following World War II you saw how our massive wartime research created a large electronics industry, how it has given automation to many processes, developed our aircraft, our petrochemical, and our pharmaceutical industries. In forest products we also saw the effects of concentrated research. During the crisis of World War II we learned to adapt wood and paper to a multitude of new uses, and while creating substitutes for materials then in short supply, we made new products and new markets.

I remember when corrugated containers began replacing wooden boxes, and fiber drums began replacing metal drums, the emergence of paper-base laminates and wall-board. Plywood was used in building bombers during the war. With the advent of weather-proof adhesives we have come to use wood in new ways, as in the wooden-hulled mine sweeper of our Navy today. The word "paper" has changed in meaning. It used to denote only cellulose fibers, but now it may contain glass, quartz, synthetics, or metals. In effect, research upgraded the basic raw material.

While the war-born research expanded the number and variety of forest products it also bred competitors in metals, plastics, chemicals. As you saw, when paper began replacing wood, competition arose within the industry, itself. Competition is increasing both here and abroad. We have seen Canada's white pine export to Britain drop 60% as Russia stepped in, and we have heard members of the Ontario Forest Industries openly admit: "That kind of competition we don't know how to meet." But that kind of competition will increase, as Sweden sends pulp-processing equipment to Russia, and China plants millions of acres of woodlands, and as all these nations intensify their research and wood technology.

Russia will not merely dump her products to gain economic power. She is doing extensive research, and developing instrumentation which seems to be ahead of ours in such areas as pyrometry.

We have passed the day when Americans can return from all foreign countries, and complacently report that the machinery is anti-diluvian and the labor underpaid. Everyone here knows of the competition we are getting from quality plywood made in Japan. It is produced by fine automatic equipment, which makes the low consumer cost quite possible.

It is we who might start thinking about replacing old equipment with new. Our competitors have taken some of their ideas from us, and have improved upon them, but they have not stopped there—nor can we. This is the challenge of tomorrow's world, and the answer lies in extensive research. How you meet the challenge depends upon the imagination you each put into research questions. In the short range this will mean applied problems and engineering, and at this level nobody else will do the kind of research which will benefit forest products. Fabricators will continue to use the cheapest materials that suit their purposes. Other industries, like the aluminum industry with its prefabricated housing, will try to take the lead and set precedents which could be in the domain of forest products. In the June 20th issue of Chemical Week, there was a note about a research project which the Manufacturing Chemists Association has established in order to promote plastics in building construction and remove what they term "the sales hampering rules of outmoded building codes." Here is a direct challenge to your applied research. Will you lead or will you take the handicap of following—and risk finding your place usurped?

Already your applied research has created a trend. Forest products no longer compete as simply a natural resource industry. Your increasingly refined products are impressive, and they indicate the potential versatility of wood.

There is the trend toward new processing methods, log harvesting, chemical debarking, wood preservation, toward the use of automatic controls, high-yield pulp processing and the increased use of chemical by-products and wood waste. All this comes from research. Every month one reads about a new wood product on the market, one which is superbly fitted to its use, which is economic, and in many instances, elegant.

With the development of new adhesives we have plywood which permits entirely new concepts in construction. I think of the laminates now

*Continued on Page 114*

**LT. GEN. JAMES M. GAVIN (Ret.) gave the accompanying article as a speech before the recent annual meeting of the Forest Products Research Society in San Francisco. Gen. Gavin possesses a brilliant military record compiled during and since World War II including the position as Deputy Chief of Staff for Plans and Research of the Department of the Army. Gen Gavin currently is vice-president of Arthur D. Little, Inc.**

FAMILY CONFERENCES at Seattle Box Co. frequently lead to discussion of additional ways to diversify, expand markets for firm's wood products. Shown here (standing, left to right) are V. J. Nist, plant superintendent; A. J. Nist, sales manager; E. J. Nist, buyer. Seated is president and general manager F. J. Nist.

STACKING MACHINE speeds stacking, stickering of lumber for air drying

# Box Plant Success Key: Pioneering, Diversification

**Seventy-year-old Seattle Box Co. has added 'imagination blocks,' paneling, siding, dimension, newest ideas in boxes, furniture assemblies and special services in expanding its markets for wood**

IT TAKES ALL KINDS of services and products to make a specialty lumber manufacturing operation like that of Seattle Box Company. The company has travelled so far in the direction of product diversification, in fact, that its name is no longer accurately descriptive of its activities.

Established 70 years ago in Seattle, Wash., Seattle Box has pioneered the commercial possibilities of many items which are now a regular part of its products inventory. In so doing it has extended the use of wood products in a number of fields.

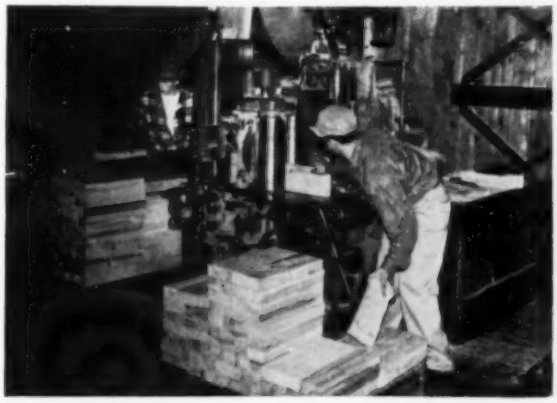
Besides boxes, crates, delivery cases, and crating lumber, the company also manufactures such apparently non-related items as bed frames, furniture stock, bread boxes, household bins, bed slats, fence pickets, bird houses, and hanging planter baskets. It even offers for sale by the barrel a product called "imagination blocks." These are odds and ends of lumber of unusual shapes which are dip-painted in several colors, then sold by the barrel in the office.

Mill products include such materials as alder, maple, ash, shiplap, 2 x 4's, pine and cedar panelings and sidings, unitized veneer lids and bottoms, dimension stock, and cut custom stock. Services include kiln drying, resawing, jointing, surfacing, and gluing.

Meantime, Seattle Box has kept itself abreast of the very latest developments in packaging and shipping. In so doing it has promoted the use of wood products extensively, especially for bulk shipping.

"Bulk shipping has opened up new

ONE OF TWO CUTOFF SAWS where operators strive to obtain best possible utilization of lumber



TWIN BAND RESAW supplies stock for firm's boxes or specialty orders for furniture

PRINTING MACHINE applies labels, brand names to beverage cases

ASSEMBLY ROOM is used for turning out furniture frames, part of the expanded operations. Note 'wall file' of jigs

AUTOMATIC NAILING machines speed box production which is still big part of firm's total output

SAW BLADES are maintained in company's own shop to insure minimum kerf specifications established by Seattle Box Co.

possibilities for the wooden box manufacturer in many new directions," says E. J. Nist, purchasing agent for the company.

"For instance, more progressive van and storage companies are now loading household goods into large crates which reduce handling time by about half. These crates must have the strength and rigidity of wood. In another activity, fruit growers are now using large wooden bulk containers which replace the smaller cardboard fruit box. We find that by going along with such trends and doing our part to advance them, we widen our growing markets," said Nist.

When North American Aviation Company developed its revolutionary fastener for bulk shipping, Seattle Box Co. officials were quick to see its possibilities for them. They became distributor for this fastener and have added several new improvements of their own such as automatic stapling in place of nails. For the larger containers, they manufacture the boxes with built-in recesses for fork lift handling.

Seattle Box Co. today is managed by third and fourth generation descendants of the original founders. President and general manager is F. J. Nist. A. J. Nist, his brother, is sales manager. E. J. Nist is his son, as are E. M. Nist, plant manager at Tacoma, and V. J. Nist, plant superintendent at Seattle. F. J. Nist, Jr., 21, is the youngest member of the family now working for the concern.

In the Seattle plant, the company employs over 70 individuals. Including the payroll of the plant in nearby Tacoma, total payroll exceeds 100 employees.

All company officials have a genuine concern for maintaining high quality standards for their products. As E. J. Nist puts it:

"When a manufacturer does not handle his wood properly and the product fails as a result, it reflects unfavorably on wood products in general. The customer will most likely condemn, not the manufacturer, but wood itself as a material. If this happens often, everyone in the industry suffers."

Much of the performance of their products is determined by the "conditioning" of the wood, Nist points out. Seattle Box works with all kinds of western hard and soft woods. They "air condition" the soft woods before kiln drying but the hard woods go directly into the kiln.

All lumber from suppliers is received in a centrally located yard area. From here, the soft woods are stacked up to 25 ft. high in parts of the yard. An automatic loader is used for this. Wood is stacked carefully for good ventilation and remains in the yard three months on the average before going into the kiln.

Lumber which is sold to customers of the western Washington area is moved into the kilns for reduction of the moisture content to 5 or 6%. This takes about seven days.

From the kilns, the lumber is moved to a covered unheated shed for "equalizing." This assures that all lumber will have a uniform moisture content of about 8%.

Years of experience and extensive experimentation have developed improved methods of handling for best quality results. In "sticking' the stacks of lumber for drying in the yard and the kilns, the company uses a uniform size of stick spaced at specific intervals and with all sticks vertically in line in the pile. Deviation here would result in uneven drying and warpage, Nist explains. They use standard 1" stock for the sticks, which are themselves thoroughly dried before they are used.

In the Seattle mill, all cutting is

*Continued on Page 37*

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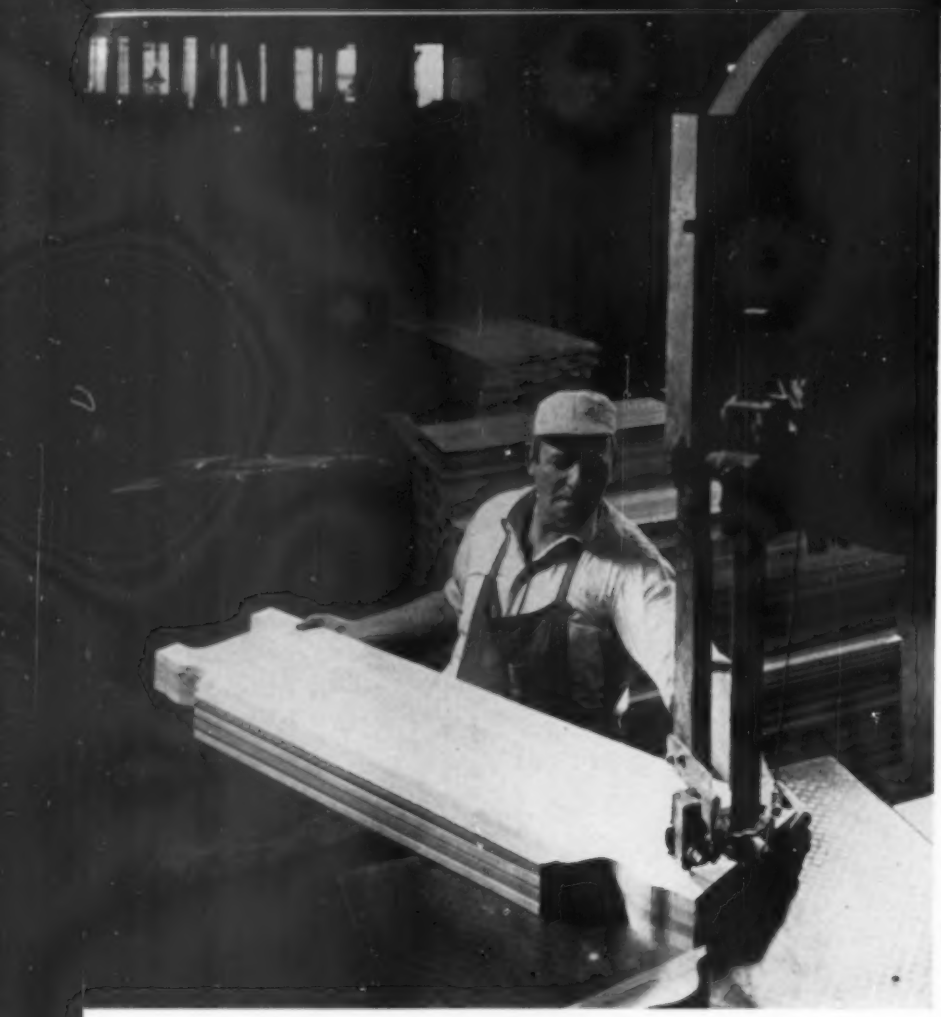

# WAGE INCENTIVES . . .
# Pitfalls Management Must Avoid

**Proper supervisor training, worker confidence, competence of plan's operators seen as essential to success of wage incentives**

**By JAMES A. TAYLOR**
**Methods and Standards Director**
**Lane Co., Inc., Altavista, Va.**

DESPITE ALL OUR EXPERIENCES, good and bad, with wage incentives through the years, one salient fact stands out: As a means of rewarding extra individual productive effort among workers engaged in similar types of work there has not yet been devised a better way than the individual production wage incentive.

Also, it is generally true that workers on a soundly established and properly administered wage incentive plan will perform at a higher work pace than workers on a straight hourly rate. In other words, wage incentives can be made to pay—and pay well.

It is not in the basic theory, it is in the application that management has fallen short. The evils of the past are still so fresh in the minds of both management and labor that it is probably advisable for us to examine some of the major shortcomings:

**1.** The failure of management to properly train supervisors in the fundamentals of time study and motion economy and the failure to require the supervisors to play a major part in the execution of the program. Passive resistance on the part of supervision, condoned by management, will erode the foundations of any incentive installation.

**2.** The failure of management to gain the understanding, co-operation and confidence of the affected workers.

The one big element in the resistance of an employee to wage incentives is fear—fear that his skill and knowledge will be de-emphasized, fear that he will have to work at a pace that will injure his health, fear that he will be laid off in a reduction of work force, fear that he will be unable to meet the work standards and will be subsequently demoted or lose his job. Also, he is afraid that if he does go all out and produce over standard the rates will be cut.

The integrity of the industrial worker is our greatest single asset. He takes pride in his ability to work, pride in the work that he does, and pride in the place where he works.

Either we find answers to these fears in our wage incentive program or we may lose the support of our workers.

**3.** The failure of management to recognize and provide the caliber of men and the technical competency required to properly install and successfully maintain a sound wage incentive plan.

To continue to reap the rewards, management must be willing to pay the price. Probably more incentive plans have failed for lack of proper maintenance than for any other single reason. The constant pressure is for loosening of standards.

However, it must be realized that any incentive plan which provides a high level of earnings without a corresponding high level of effort will fail just as surely as the plan that does not provide a high level of earnings for a high level of effort. In other words, the standards must at all times relate directly to the work they purport to measure, and within an organization they must be reasonable and consistent.

Most of the individual incentive plans currently in use are either straight piecework—or straight hour-for-hour—which is about the same as piecework except that the standards are expressed in time (minutes or hours per unit) instead of money. All

*Continued on Page 106*

# HINES WEAVBORD

DRAMATIC NEW HARDBOARD PATTERN FOR FURNITURE!

Drawer fronts of Hines Allwood Weavbord give this modern dresser unusual accents that look expensive but actually help keep costs low. As with other Hines Allwood Hardboard decorative panellings, the attractive tooled effects come built into the material. (Dresser by Wallace Hollywood)

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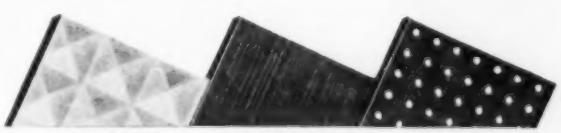

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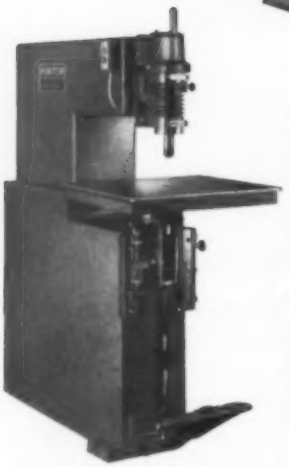

MODEL 900 ROUTER

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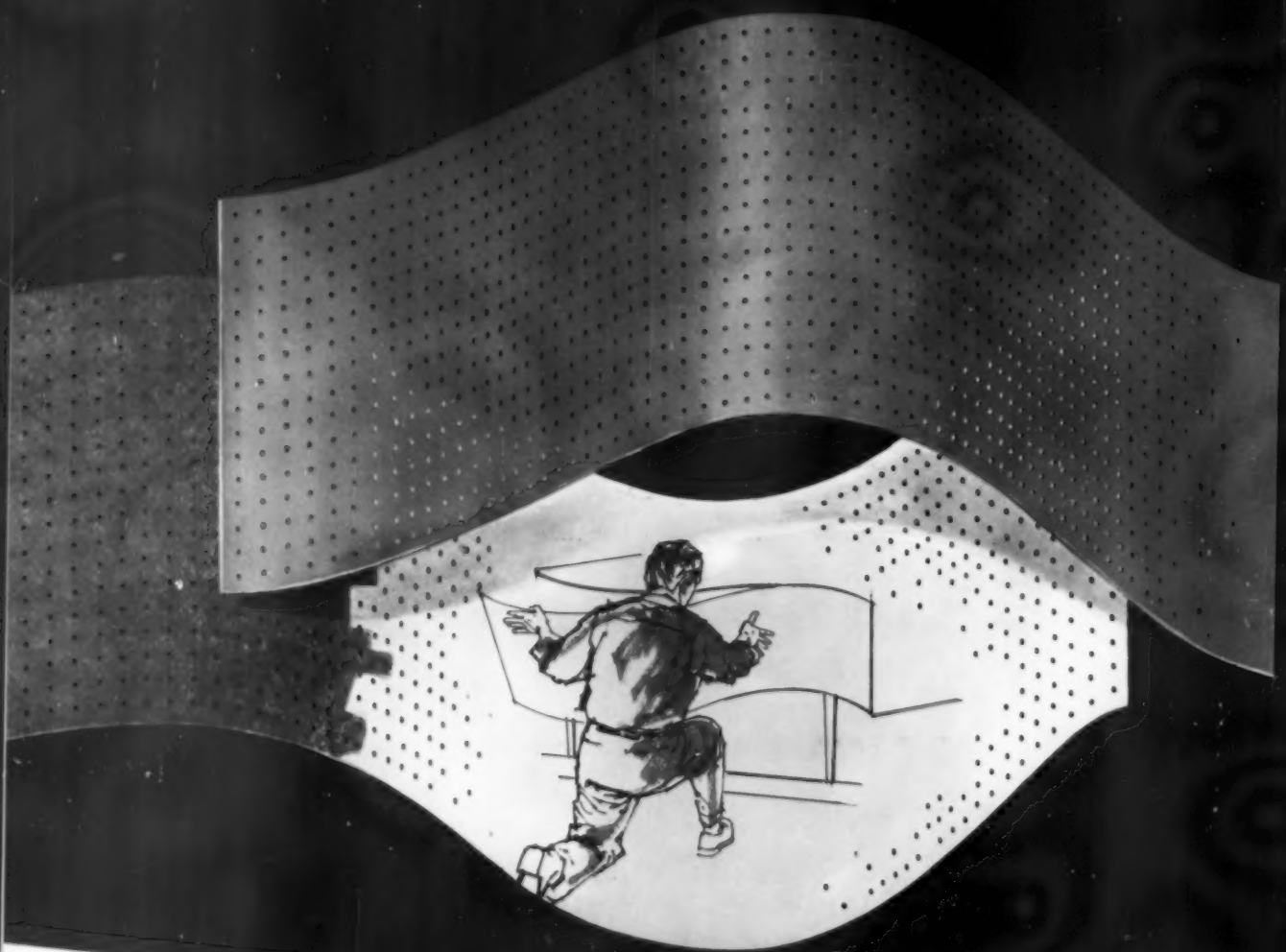

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## Box Plant Success Key

*Continued from Page 28*

done on the main floor. Here, the company uses four cutoff saws and two band saws. Latter include a single band saw and one twin band saw, both of which are used for resawing. The upstairs floor is used for nailing, assembling, and painting. The basement floor is their "variety room," being set up as an all-around cabinet shop for specialty work.

"Because of our high degree of diversification, we can't set up specialized production processes," E. J. Nist explains. "However, we have found that good equipment properly designed for our purposes, goes a long way toward giving us efficient plant operation."

Efficiency and economy are both served, he mentions, by use of carbide tipped circular saw blades for their cutoff saws. With regular blades, the saws have to be refiled about once a week. In addition to the $2 cost of filing, it takes some extra time just to change blades. Despite the $60 to $70 additional cost of the carbide tipped blades, the savings realized through their use is impressive. These blades must be sent out for sharpening only once every three or four months.

For all except carbide tipped blades, the company finds it worthwhile to do their own saw filing. They are able to get the saws when they need them and get the kind of saw filing job that they require.

The large band saw blades, for instance, make a kerf 1/8 in. wide. With a blade 3/32 in. thick, that means a set in the teeth of only 1/64 in. It requires a high degree of skill on the part of the saw filer to do a good job consistently.

As a supplier of furniture manufacturers, Seattle Box must meet extra high standards of quality for many of their customers. The first step when the lumber is brought into the plant, accordingly, is to grade it and trim it. This is the responsibility of a grader and cutoff man. At this cutoff saw, the grader cuts every piece of wood into the longest lengths possible of the better grades. The pieces then are stacked according to grades and length, some as short as 12 inches.

"Our policy here is to cut the lumber to suit the furniture, not the furniture to suit the lumber," Nist explains.

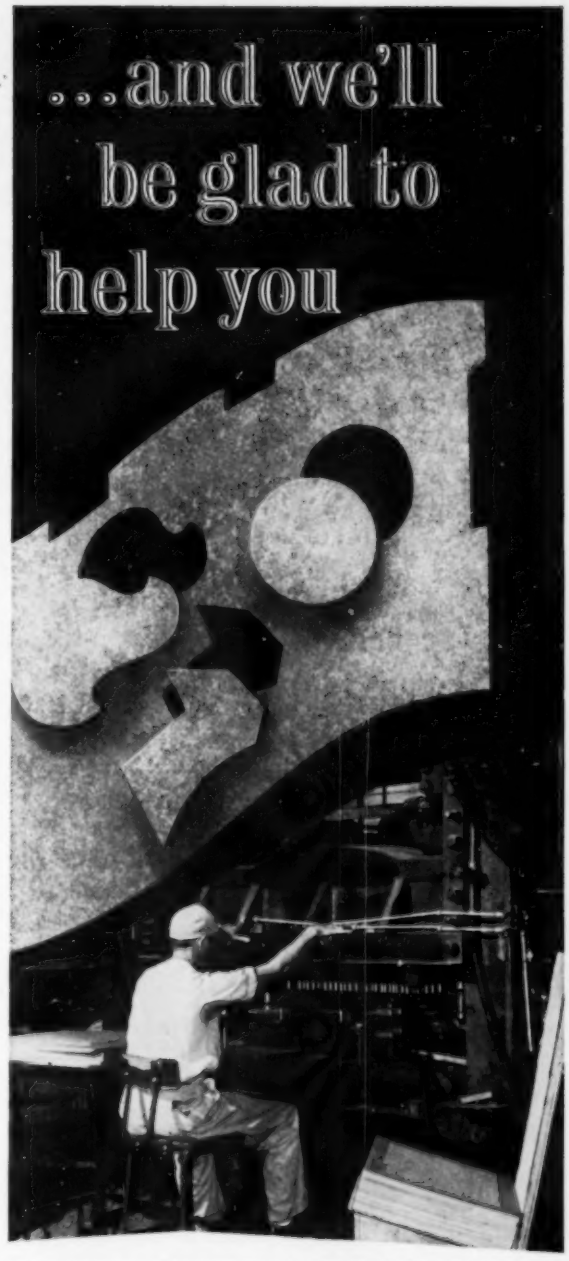
Manufacture of furniture assemblies such as frames for overstuffed furniture, now accounts for approximately 20% of the company's total volume of work. Much of this work is quite technical. Production here is expedited by use of numerous jigs in the upstairs furniture assembly room.

Detailed drawings for work of this sort are made by two men on the companys staff who are qualified engineers. They make the master drawing and this is copied by photostat process in the plant. Copies are then made up for each machanic working on the ssembly. The original or master drawing is kept in the office. When the job is completed the photostat copies are filed for possible future use. Revisions are made as needed.

**Some Machines Used at Seattle Box Co.:**

*(Circle numbers of items on which more information is desired in coupon on Page 147.)*

**(907) Lumber stacker machine** ..... **Stemm Bros.**
**(908) Band re-saw** ..... **Mershon Machinery Co.**
**(909) Printing machine** ..... **Morgan Machine Co., Inc.**
**(910) Nailing machine** ..... **Morgan Machinery Co., Inc.**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# WOOD & WOOD PRODUCTS

## PROGRESS REPORT:

# WOOD FINISHING

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WOOD FINISHING PROGRESS REPORT

(Photo Courtesy Cargill, Inc.)

# An Industry-wide Look at WOOD FINISHING

By J. F. KOELLISCH
Editor

"OUR COMPANY is seriously considering the development of a prefinishing plant for processing the high quality knotty pine paneling which we produce. We would appreciate any information on techniques, equipment or finishes and any suggestions you might have to aid us in setting up such a plant."

So wrote an important lumber producer two weeks ago in a letter to the editors of WOOD & WOOD PRODUCTS. A week later came an appeal from another lumber giant for information on roller coaters and other special help on his problem of staining (and packaging) lumber paneling.

A reader recently requested help in conveyorizing a cabinet finishing system and installing equipment for graining the cabinets. A volume producer of small novelty wood items called attention to his rising labor and material costs and asked advice and assistance in modernizing his finishing operations for greater efficiency and economy.

Producers of mobile homes are seeking prefinished panel products to help reduce production labor and costs. Another reader seeks information on application of a simulated wood grain finish to hardboard and plywood panels.

Half a dozen wood industry conventions during the past year have featured panel sessions on finishing—not only furniture producers, but makers of architectural woodwork, panel products and other wood items which in several instances reflect the current remarkable shift from on-the-site to *factory finishing*. The Forest Products Research Society devoted two full sessions to finishing materials, methods and equipment at its recent annual meeting in San Francisco.

The president of a large plywood firm and the vice-president of a nationally prominent firm of finish suppliers spent a whole day the other month going over plans and ideas for intensive co-operation in major wood finishing developments.

A survey by the National Institute of Wood Kitchen Cabinets revealed that 78% of the factory-made wood kitchen cabinets are prefinished. One large kitchen cabinet producer turns

▶

**WOOD FINISHING "on the conveyor" at Long-Bell Div., International Paper Co.**

out a line of formed hardboard cabinet shells with interchangeable fronts or faces in a choice of seven fine finishes. Another installs a continuous two-cycle line that sands, seals and finishes panels in 30 minutes, immediately boosts output by 50%.

A nationally known window manufacturer now ships factory-primed window parts.

A lengthy recital? Yes, but deliberately so to point up the great upsurge of interest and activity in factory finishing of all kinds of wood products now taking place. It's a movement which all signs indicate will grow a lot bigger before it settles down. It's a movement which will contribute immeasurably to the broadening of wood's markets as consumers find that they can buy more and more wood products from which smart manufacturers have removed the high costs, headaches and uncertainties of on-the-site finishing, just as they have long produced fine finished furniture and wood cabinets.

It is the purpose of this Progress Report to aid and encourage the growth of the wood finishing movement by bringing to all segments of the industry, in a single, integrated package, as much information as could be gathered on recent, current and furure trends and developments in this fast-moving field. Here is a compact report on what's available in materials, methods, machines and equipment, backed up by case histories from the field on many new and different types of finishing. It is designed to provide ideas for the man who wants to improve an existing finishing operation as well as a shopping place for the man who plans to install a finishing system.

Hand in hand with the growth in factory finishing of many fine wood products goes the necessity of developing and training technologists in wood finishing, and it is hoped that this Progress Report will be helpful in that respect. Certainly "the boss," while he must have some understanding of the economics and the possibilities of better finishing as well as the pitfalls, can't be a finishing expert along with all his other responsibilities. But if he's going into finishing on a production basis, it is imperative that the responsibility for this operation be placed in the hands of someone who knows finishing.

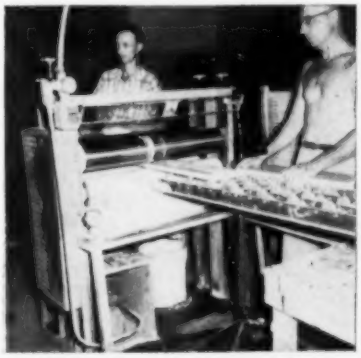
Here, as seen by Donald G. Lubeck, of Hammond Organ Co., chairman of the F.P.R.S. Wood Finishing Division, are some points about modern wood finishing of which your finishing department must be aware:

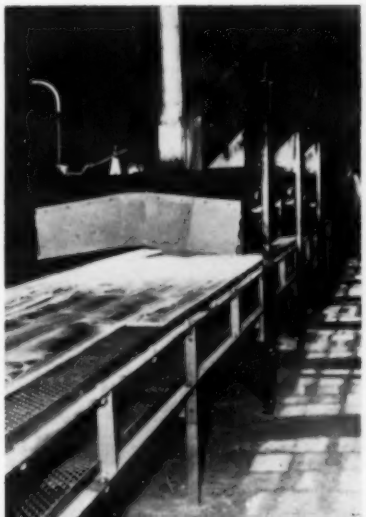
"Wood finishers are beginning to realize that price per gallon is not the criterion for measurement. It is *performance* that counts. . . . As a result of improved processing methods, more attention will now be given to finishing good work more economically. This, in turn, suggests multiple finishing operations—that is, pressure curtain coating those parts suited to this method, spraying parts that can best be handled by spraying, and roller coating, flow coating or dipping parts that can best be coated by this method. All these processes will eventually be performed in the same finishing room simultaneously. . . .

"Finishing cycles that were once measured in days, and now in hours, will soon be measured in minutes. A key factor in this automation will be proper wood preparation. . . . It is entirely possible that in a few years the first finishing operation, before or after sanding, will be the application of a stabilizer that will normalize the

*Continued on Page 94*

**More and better finishing key to expanded wood markets. Shift in many wood products from on-site to factory finishing, a la furniture and cabinets, shares spotlight with new materials, methods and equipment—Trained manpower essential to progress as movement spreads**





**ROLLER COATING** (above at Timely Furniture Div.) and rapid infrared drying (below at Plywood Finishing Corp.)

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# What's New in ABRASIVES

### By W. K. VAN ORMER
**Carborundum Co.**

IN MY OPINION, the most significant developments or improvements in abrasives for wood products in the past year or so involve the use of new types of coated abrasive belt woodworking machinery, permitting the labor saving and cost saving benefits and surface quality improvements that pertain as follows:

(A) Through-feed single or multiple head machines employing coated abrasive belts from 24 to 50 in. wide and sanding wood panels lengthwise with the grain, and (B) Through-feed machines incorporating sponge rubber contact belts on which 6 in. wide coated abrasive belts are used for surfacing panels with the grain which are fed through on a conveyor 90° to the direction of the conveyor travel.

The most significant progress in abrasives for wood in the next one to five years will undoubtedly incorporate more resin bond products for a multiplicity of uses and finishing cloth belts for use on the heat-sealing of wood.

### By A. BLOCK
**Merit Products, Inc.**

IN SANDING, the newest and most r a d i c a l – and most comment-provoking–developments have been the flexible drum sander, wide belt sanders, the machines which combine hard drum and belt sanding principles, and the recent development of the heat-burnishing techniques using cork belt, etc. Also the use of flap wheel sanding heads in the breaking of edges –such as in the sanding of hollow core door edges.

Now in regard to the most significant developments that may be expected in the next few years, we believe that this will very likely be made by the coated abrasive manufacturers in developing abrasive paper and cloth, which will make possible the machining of wood to shape, cutting and forming the wood at high speed without burning the stock. We know at the present time that one of the major companies is working on this particular type of abrasive, although the subject is very closely guarded at the moment. Up until now, the forming of wood has always been accomplished by one of the two basic wood-forming processes–that is, either cutting or pressure bending. In the cutting process, knives or a form thereof have always been used, such as blades moving in a rotary fashion as in planer heads, dadoes, etc.–or in a straight line as with a simple saw, etc.–or in a linear motion as with a shaper. We believe that this will be greatly modified by the introduction of abrasives to do this cutting.

Another continuing development will be the use of the flexible drum sander in preparing prefinished wood items such as: plywood panels, case goods, solid wood paneling, etc. The next few months will see the development of finishes expressly designed by the paint manufacturers for use with this type of tool to achieve the finishes required by this new process.

### By C. L. MURPHY
**Minnesota Mining and Mfg. Co.**

AS FAR AS COATED ABRASIVE constructions are concerned, certainly the most significant development in our opinion is the application of new resin bonds similar to those used in other phases of industry. These resins have provided greater strength and longer productive life for coated abrasives in the basic metal fields. Now the emergence of garnet sandpapers as resin-bonded products offers the woodworker a unique combination of exceptionally fine white wood finishes, long cutting life and economy of operation.

Continuing in importance in the last year, and in the future, is the technology of wide belt sanding, including developments in machines as well as abrasive belt construction. Now, wide belts and the right contact wheel, plus speed and very fine abrasive grits, enable the woodworker to mass-produce salable finishes on plywood panels–and chances are that some day furniture will be mass prefinished in the same way.

## A GUIDE FOR SANDING 'WOOD IN THE WHITE' AND WOOD FINISHING

The 'wood sanding guide' was originally prepared for WOOD & WOOD PRODUCTS by the Coated Abrasives Division of the Carborundum Co. With the cooperation of the Carborundum Co., Merit Products, Inc., and the Minnesota Mining and Manufacturing Co., the original guide has been expanded, modernized and brought "up-to-the-minute" to make it of even greater value to wood products manufacturers. -- The Editors.

| OPERATION | TYPE OF ABRASIVE | GRIT RANGE | FORM | AVAILABILITY | COMMENTS |
|---|---|---|---|---|---|
| Belt sanding mouldings | Garnet | 60 - 150<br>½ 4/0 | Moulding cloth jeans | Rolls, belts, discs and sleeves | Extreme flexibility of cloth allows it to follow contour of mould and other shapes easily. Used at low speeds. |
| Belt sanding mouldings | Garnet | 80 - 150<br>1/0 4/0 | Resin cloth jeans | Rolls, belts, discs and sleeves | Used wherever extreme flexibility is not required. Aggressive cutting and slow to burn. Speeds up to 4,000 s.f.p.m. |
| Belt sanding mouldings | Aluminum oxide | 60 - 150<br>½ 4/0 | Moulding cloth jeans Also, resin cloth jeans | Rolls, belts, discs and sleeves | Extreme flexibility of cloth allows it to follow contour of mould and other shapes easily. Used at low speeds. |
| Belt sanding mouldings | Aluminum oxide | 80 - 150<br>1/0 4/0 | Resin cloth jeans | Rolls, belts, discs and sleeves | Used wherever extreme flexibility is not required. Aggressive cutting and slow to burn. Speeds exceeding 4,000 s.f.p.m. |
| Belt sanding contours | Garnet | 60 - 150<br>½ 4/0 | Belt cloth jeans. Also resin cloth jeans | Rolls, belts, discs and sleeves | Used on pneumatic drums in sleeve or belt form on simple moulds -- speeds 2,500 - 3,500 s.f.p.m. |
| Belt sanding contours | Aluminum oxide | 60 - 150<br>½ 4/0 | Belt cloth jeans. Also resin cloth jeans | Rolls, belts, discs and sleeves | Used on pneumatic drums in sleeve or belt form on simple moulds. Used on high-speed machines exceeding 4,000 s.f.p.m. |
| Belt sanding contours | Garnet | 24 - 120<br>3 3/0 | Belt cloth drills | Rolls, belts, discs, sleeves and shredded cloth | Used on rough work, turnings, etc., at speeds of 2,500 - 3,500 s.f.p.m. |
| Belt sanding contours | Aluminum oxide | 24 - 120<br>3 3/0 | Belt cloth drills | Rolls, belts, discs, sleeves and shredded cloth | Used on rough work at speeds of 4,000 s.f.p.m. and higher. |
| Belt edge sanding | Garnet | 24 - 120<br>3 3/0 | Belt cloth drills. Also resin cloth drills. | Rolls and belts | Used at speeds of 2,400 - 4,000 s.f.p.m. |
| Belt edge sanding | Garnet | 40 - 120<br>1½ 3/0 | Resin cloth drills | Rolls and belts | Fast cutting, slow to burn and produces excellent finish. Speeds up to 4,000 s.f.p.m. |
| Belt edge sanding | Aluminum oxide | 24 - 120<br>3 3/0 | Belt cloth drills | Rolls and belts | Used at speeds exceeding 4,000 s.f.p.m. |
| Belt edge sanding | Aluminum oxide | 24 - 120<br>3 3/0 | Resin cloth drills | Rolls and belts | Used at speeds exceeding 4,000 s.f.p.m. Very long lived. |
| Pre-finished panel sanding | Aluminum oxide | 120 - 400 | Flexible drum loadings, unslashed | 8 to 72 in. widths | For high production sanding of base, sealer and top coats on flat surfaces. |
| Drum sanding | Garnet | 20 - 220<br>3½ 6/0 | Drum paper | Rolls, standard widths, 24 - 48 in. | Used on both multiple moving bed sanders and open throat sanders where speeds should be 1,200 to 1,500 r.p.m. |
| Drum sanding | Garnet | 60 - 150<br>½ 4/0 | Resin drum paper | Rolls, standard widths, 24 x 48 in. | Used on multiple drum and open throat sanders. Long lived where premature loading is no problem. Best results on slower 1,200 r.p.m. drums. |
| Drum sanding | Aluminum Oxide | 20 - 180<br>3½ 5/0 | Drum paper | Rolls, standard widths, 24 - 48 in. | Used on high speed drums where speeds should be 1,500 r.p.m. |
| Drum sanding | Aluminum oxide | 20 - 80<br>3½ 1/0 | Drum paper combination | Rolls, 24 in. | Utilized for heavy stock removal jobs at high speeds. |
| Drum sanding | Garnet | 20 - 120 | Resin fiber | Rolls, 24 in. | Generally used for sash and door work to smooth and reduce. Also used on plywood. |
| Drum sanding | Aluminum oxide | 36 - 180<br>2 5/0 | Resin drum paper | Rolls up to 50 in. wide | Used on drums turning at 1,500 r.p.m. Aggressive and long lived. |
| Contoured surface sanding | Aluminum oxide | 60 - 400 | Flexible drum loadings, slashed | 8 in. to 72 in. widths | For sanding moulded or contoured surface stock, 'white' or pre-finished. |
| Belt sanding flat work | Aluminum oxide | 20 - 400<br>3½ | Belt paper | Standard rolls or belts | Used on belt machines exceeding 5,000 s.f.p.m. |
| Belt sanding flat work | Garnet | 20 - 180<br>3½ | Belt paper | Standard rolls or belts | Belts used on machines at speeds of 3,000 to 5,000 s.f.p.m. |
| Belt drawer sanding | Garnet | 24 - 120<br>3 3/0 | Belt cloth drills | Rolls, belts | Used for sanding butt grain dovetails as well as straight grain side panels. Glued parts usually sanded wet at 3,000 - 4,000 s.f.p.m. |
| Belt drawer sanding | Garnet | 40 - 120<br>1½ 3/0 | Resin cloth drills | Rolls and belts | Used for all drawer sanding operations. Aggressive and long lived. Speeds up to 4,000 s.f.p.m. |
| Cabinet room sanding | Garnet | 36 - 150<br>2 410 | Cabinet paper | Standard size cut sheets | Used by hand for touch-up work, spot sanding, patching, etc. |
| Cabinet room sanding | Aluminum oxide | 36 - 150<br>2 | Cabinet paper | Standard size cut sheets | Generally used on vibrating machines for flat work. |
| Undercoat or sealer sanding | Garnet | 80 - 280<br>1/0 9/0 | Finishing paper | Standard size cut sheets | Sanding undercoats and sealers that have a tendency to fill abrasive paper. |
| Undercoat or sealer sanding | Aluminum oxide | 80 - 320<br>1/0 9/0 | Finishing paper | Standard size cut sheets | Same as immediately above, but generally used on vibrating machines. |
| Undercoat or sealer sanding | Silicon carbide | 120-400<br>3/0 10/0 | Finishing paper | Standard size cut sheets | Same as above. |

# WIDE BELTS

## New Trend in Wood Sanding

**Here's a rundown on one of the hottest sanding developments in the wood industry—wide belt sanders. Included are details on available machines.**

By HARVEY L. BENNETT

Product Engineer,
Behr-Manning Co.

TO OFFSET HIGHER manufacturing costs and to meet more exacting requirements by the customer, the woodworking industry has found itself compelled to improve finishes and increase output—per man and per dollar of plant capital invested. Such demands call for better wood-sanding methods. Accordingly, the industry has called on manufacturers of woodworking machinery and coated abrasives to design and build products that will meet these demands.

The basic problem was to develop equipment that could be operated simply, would assure uniformly good finish and speed up production enough to justify the added investment. Sound logic pointed to the development of wide-belt machines capable of sanding a complete surface with a single pass.

For several years leading machinery builders have been hard at work designing prototype units, making field tests and modifying their designs to include the improvements suggested by the testing. Today, many such new machines are producing successfully in actual plant use.

Fortunately, the coated abrasives industry could call on a large fund of experience gained through supplying such belts to the metalworking industries. For wood, however, special joints had to be developed, because joints any thicker than the belt itself would produce markings unacceptable on fine finishes. Also, resin bonded products became necessary in order to extend belt life. Improved coating techniques and proper flexing became compulsory. Fortunately, the great majority of plants are able to keep costs in line by using paper-backed belts on the new equipment, rather than the more costly cloth belts.

Today, wide belts of coated abrasive are showing improved performance in production while still meeting the stiffer requirements as to finish. Popular grits range from 60-E (½) through 400-E (10/0), depending on the condition of the stock and the degree of finish required.

My company has surveyed mill owners and superintendents and has encountered such statements as, "We couldn't operate at our present production rates without the wide belts. They have made it possible for us to run profitably. With drum sanders we can't sand or polish ¾ in. items, which are what we want to produce. The wide belt can handle the warped or undulated panel without cutting completely through the 1/28 in. face stock."

An official of the Plywood Research Foundation told us his industry is seeking not only manufacturing economies, but improved quality as well. He told us that in his opinion, the advent of the wide-belt sander was destined to revolutionize plywood sanding within the next few years. He quoted production figures at one mill which is polishing 2,500 to 2,700 panels per shift, and getting belt life of 40 hours.

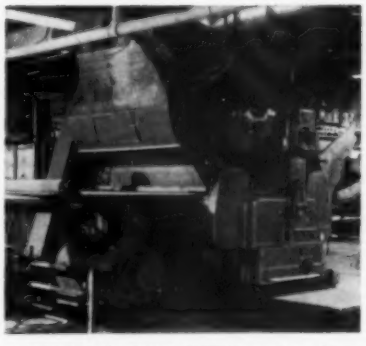
Briefly described, here the various machines and the kind of product the equipment is designed to handle:

*The S-53 Combination Drum and Belt Sander*, manufactured by Yates-American Machine Co., Beloit, Wis. This is the first multiple-head belt sander which affords the user a complete sequence of grits. Thus it can size, cut down and polish in a single operation. To meet a variety of applications, the unit is designed to use a spiral wound drum, a serrated rubber contact roll and abrasive belt, and a flexible platen assembly with belt—or any combination of these.

For example, the machine can be furnished with three belts running

SHERRILL MACHINE CO. B-38 A unit is used for sanding furniture sub-assemblies

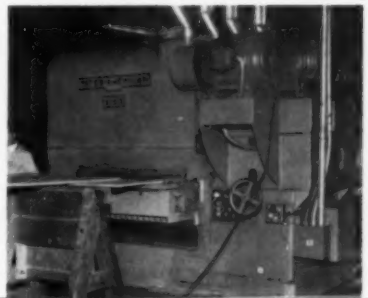
J. M. NASH MACHINE CO. unit is single, overhead belt unit



MATTISON MACHINE WORKS 456 is single, overhead belt unit

UNION TOOL CORP. Flap wheel sander uses 'flaps' of sanding paper on wide surfaces

YATES-AMERICAN MACHINE CO. S-53 uses both drum and belt principle



## READERS' OPINIONS REQUESTED

*Dear Reader:*

During 1959 WOOD & WOOD PRODUCTS is publishing a series of Progress Reports on specific subjects. In each case the aim is to give you in a single issue as much practical information as we can gather on trends and developments in the subject field. This issue's Progress Report on finishing of all kinds of wood products exemplifies this new editorial service.

To help us plan the 1960 Progress Reports so they will meet the immediate interests and needs of the majority of our readers, we ask you kindly for your answers to the questions on the attached card. Thank you.

—THE EDITORS

44A

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### WOOD & WOOD PRODUCTS

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| March | Wood Gluing and Laminating | _____ | _____ | _____ |
| June | Board Products (Hardboard—Particle Board) | _____ | _____ | _____ |
| September | Wood Finishing | _____ | _____ | _____ |

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_____Power Transmission
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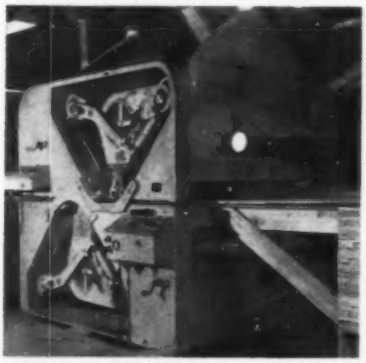
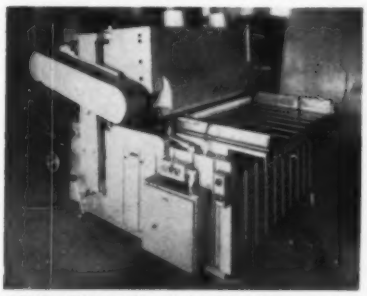
—THE EDITORS
WOOD & WOOD PRODUCTS

TIMESAVERS, INC. wide belt sander has 'floating sanding head'



SMITHWAY MACHINE CO. sander has belts on both top and bottom



MERIT PRODUCTS, INC. Flex-Drum sander utilizes 'leaves' of abrasive paper

over two contact rolls and a platen, or with a combination of one contact roll and either two or three platens. Belt tracking is controlled automatically by air to assure proper tension and oscillation.

The endless bed feed has been engineered to provide feed rates of 30 to 90 f.p.m. Properly designed pressure platens prevent dubbing of stock. The 103 in. belt is ordered in 50 or 55 in. widths, depending on the job. This equipment is designed to process hardwood, fir plywood and furniture dimension stock.

*Roll Feed Sander* manufactured by Smithway Machine Co., Seattle, Wash. This machine is the first over-and-under wide-belt sander, a design which makes it possible to sand both the top and bottom of the stock in a single operation.

It is equipped with two rubber contact rolls, one each for the top and bottom belts. Each contact roll is opposed by a billy or pressure roll. Four sets of powered pinch rolls feed stock at rates which can be varied from 30 to 100 f.p.m.

Automatic belt tracking and air tensioning assure good control of the abrasive belt, which measures 50 x 145 in. Although the unit is designed principally for sanding re-patch fir plywood panels, it is expected to show good results on hardwood panels as well. The first installation has been made at a large California mill.

*50-in. 58 Flatbed Sander* manufactured by J. M. Nash Co., Milwaukee, Wis. The machine is a single-belt, bottom-side sander designed for cutting down and polishing furniture dimension and plywood stock. It is available with a serrated rubber contact roll or a platen assembly. Automatic belt tension and tracking control combine to provide uniform oscillation. The flat bed and the method of feed by an overhead rubber belt backed up by a metal platen makes possible a range of feed rates from 30 to 70 f.p.m., besides straightening the stock to prevent dubbing. Abrasive belt size is 50 x 162 in.

*No. 456 Wide Belt Sander* manufactured by Mattison Machine Works, Rockford, Ill. This is a single overhead belt machine built for heavy sizing operations. The unit is equipped with a serrated rubber contact roll opposed by a billy roll and two sets of pinch rolls to supply feed speeds up to 150 f.p.m. It uses a 54 x 243 in. abrasive belt which is tensioned, tracked and oscillated automatically.

The most recent installation was made at Algoma Plywood Corp., Algoma, Wis., for sizing fireproof doors.

*B-52A Speed Feed Sander* manufactured by Sherrill Machine Co., Troutman, N. C. This, the original wide-belt machine, is a bottom-side sander using a serrated rubber contact roll opposed by twin feed rolls to provide continuous flow of stock through the unit. Stock is supported by an adjustable infeed table and outfeed rolls. Special self-aligning pulleys control belt tracking. Feed speeds range from 30 to 100 f.p.m., and the belt size is 50 x 93 in. This machine is designed for sanding hardwood plywood panels and flush panel doors.

*Model B-38 Belt Sander* (for 38 x 93 in. belt) is designed for processing sub-assembly stock for furniture.

*Model B-24 Belt Sander* (24 x 93 in. belt) is also available for small stock. Sherrill equipment is among the lowest-priced wide-belt equipment on the market. Numerous machines of these types are operating successfully in production.

*Indiana Sander* manufactured by Union Tool Corp., Warsaw, Ind. This is an overhead platen sander employing hold-down rolls and a rubber conveyor belt supported by a flat bed. The unit is equipped with automatic control of belt tension and tracking. Feed speeds range upward to 100 f.p.m.; belt size is 43 x 111 in. The Indiana machine is designed to process furniture dimension stock.

*Oakley Sander* manufactured by the Oakley Co., Bristol, Tenn. A pinch-roll feed machine for processing furniture dimension stock, it employs an overhead belt unit with a rubber contact roll and special manual control of belt tracking. Feed speeds range from 30 to 90 f.p.m. Belt size is 24 x 144 in.

*Timesavers, Inc.* wide-belt sanding machine is used for sanding a variety of wood parts. It features a 'floating sanding head' which sands topside of the work and allows for slight variations in stock thicknesses. Because of small radii of feed and contact rolls, small radius curved and serpentine wood parts can be handled on it.

*Merit Products, Inc., Flex-Drum Sander* is one of the new wide type sanders which utilizes "leaves of abrasive paper" in finishing. The sanders are available in various sizes to handle panels up to 60 in. wide with grits ranging from No. 50 to 320. Mandrel is slotted to permit fast changeover or replacement of abrasives.

*The Union Tool Corp. Flap Wheel Sander* is another wide-capacity sander which also utilizes abrasives leaves or 'flaps.' The unit is equipped with 14 in. diameter flap wheels stagger mounted on two 2 in. diameter arbors. Four pinch rolls in two sections control the panel feed speed. A Tampico fiber brush roll turns in reverse behind the sanding heads to assure clean panels for subsequent finishing operations.

**Sanding Equipment Referred to in Above Article on Wide-Belt and Flexible Drum Machines:**

*(Circle numbers of items on which more information is desired on coupon on page 147.)*

**(917) Indiana wide belt sander ....Union Tool Corp.**
**(918) No. 456 wide belt sander .....Mattison Machine Works**
**(919) Flex-Drum Sander ..Merit Products, Inc.**
**(920) No. B-38 wide belt sander .....Sherrill Machine Co.**
**(921) Wide belt sander ..J. M. Nash Machine Co.**
**(922) 5-53 wide belt sander ...Yates-American Machine Co.**
**(923) Flap wheel sander .....Union Tool Corp.**
**(970) No. B-52-A wide belt sander ....Sherrill Machine Co.**
**(982) Wide belt sander ..Smithway Machine Co.**
**(983) Wide belt sander .....Oakley Co.**
**(984) Wide belt sander .....Timesavers, Inc.**

# New World of Finishes for Finer Wood Products

**What about these polyurethanes, acrylics, polyesters, etc.? What have been the most significant advances in finish materials? What does the future hold? Here are the experts' answers in a symposium-in-print on finish materials**

THERE IS LITTLE DOUBT today that the wood industry is entering a period that may best be described as offering "a new world of finishes for finer wood products."

Attending conventions, listening to finish salesmen, talking with industry friends and competitors—the average producer of finished wood products is hearing a different vocabulary of usually difficult-to-pronounce words. The words sound like newness itself—acrylics, polyurethanes, polyesters, epoxies. For the most part, the new words mean new finishes that offer in some cases almost unbelievable durability for coatings on fine wood products.

In all cases, the new words mean terrific problems which the wood products manufacturer and the finish people must cooperate to solve ("watch the fumes, they're poisonous"—"clean the spray guns immediately, 'cause if you don't, you'll never get the stuff off.")

Then, too, in addition to the new sounding words, the average wood products producer is hearing about significant advances in the industry stand-by — lacquer — which still accounts for the vast majority of all fine wood finishing tasks. The burgeoning re-discovery of the fabulous beauty of wood grain is kindling a concerted drive to obtain more and more colors in coatings that do not mask the grain, but, if possible, enhance its beauty.

Conveyorized finishing ("we put white stock in this end, and it comes out sanded, sealed, lacquered, dried, buffed and packaged at that end") may yet prove to be the tail that wags a large portion of finish industry. Almost weekly, a new conveyorized finishing line goes on power. It may be for plywood or hardboard panels, furniture panels, or completely assembled furniture suites. Speed in conveyorization requires finish that can coat at speeds (for panels) that may exceed 500 f.p.m., and still dry in a matter of 1½ to 3 minutes in an oven.

As is obvious from the following comments of some of the finish industry's leading experts, there is no really unanimous agreement on "what's newest" and "what will be newest and best" in finishing materials.

## Improvements in Finish That Won't Mask Grain

**By W. I. LONGSWORTH Jr.**
**Lilly Varnish Co.**

SINCE THE DEVELOPMENT of lacquer as a replacement for varnish, there have been no revolutionary changes in wood finishing materials. Most changes have been marginal improvements in existing products rather than dramatic changes. Perhaps the most significant development of the past few years has been the development of better wood staining preparations which make possible color changes from the natural wood while minimizing the obscuring of the wood with pigment.

We feel that the most significant development in coatings formulation is likely to be a continuing improvement in wood coloring materials which minimize obscuring the grain pattern of the wood. Since more wood of poorer grade will, of necessity, be used by wood finishers, the development of such products to "uniform" this poorer wood is of considerable importance. On the other hand, substantial developments are being made in the tools available to apply the finishing materials which are available.

Airless, pressure curtain application, hydrospray and roller coating are several significant developments. It is probable that these developments will encourage the further growth of finishing prior to assembly or even prior to complete fabrication, just as these developments will spur the development of further finishing and shipment of furniture in knocked down form for assembly by the purchaser or retailer.

## Plastic Film Finish Holds Great Promise

**By J. A. HAGER**
**Grand Rapids Varnish Corp.**

THE MOST SIGNIFICANT development in finishing materials for wood products in recent years has been the continuing improvement in the inherent qualities of wood finishing materials—this as contrasted to appearance values.

These improvements have been in three principal areas :

(1) Color stability—including (a) more light-fast resistance in both the dye and pigment type of stain; (b) non-yellowing top coats such as stabilized nitrocellulose coatings—cellu-

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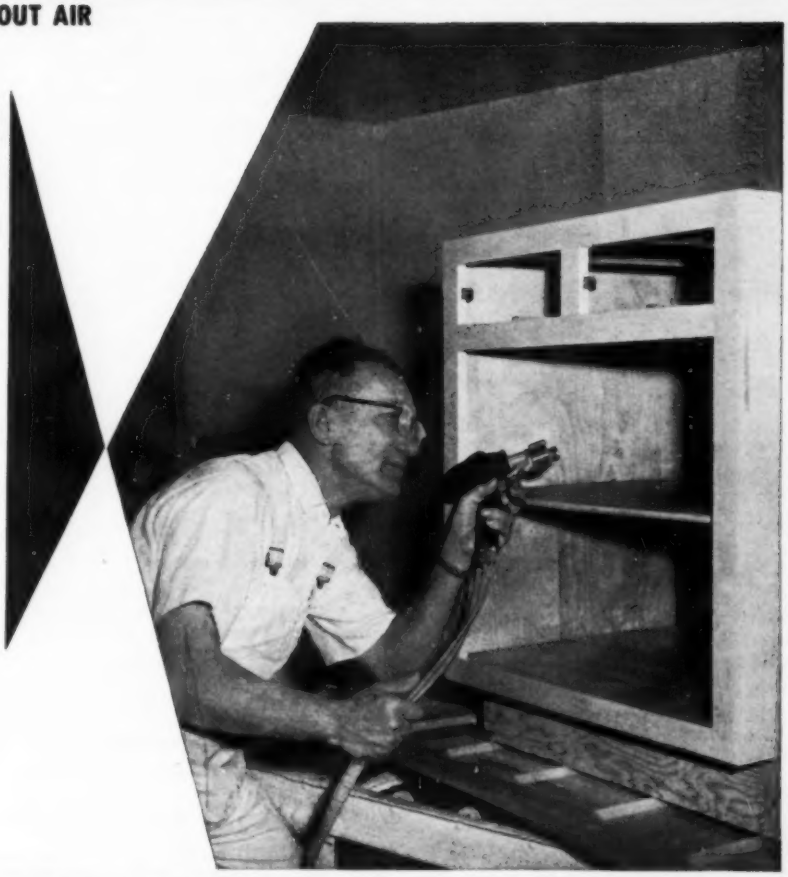
- Decrease paint losses and labor by as much as 50%.
- Decrease booth maintenance costs.
- Reduce auxiliary painting equipment requirements.
- Reduce health and fire hazards.



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lose acetate butyrate coatings; (c) increased understanding and extended use of ultra-violet absorbers.

(2) Increased toughness and mar resistance of finishes through the use of adhesive sealers and acrylic emulsion sealers.

(3) Greater resistance qualities to mars, scratches and other abuses such as chemicals, foods, and other products used in the home through urea type coatings, catalyzed lacquers, urea formaldehyde and epoxy resins in combination with nitrocellulose—and polyester coatings.

The only new development that now clearly shows promise is the use of clear plastic film formers as a means of achieving sprayed coatings that will approach the resistance qualities and properties of the laminated plastics. The polyester coatings presently seem to hold the greatest promise.

We believe there will be continuing small developments in bleaches, stains, fillers, sealers and top coats. These advances will, in all likelihood, be along the same lines as prevailed in the past. In all likelihood, too, there will be nothing very spectacular in any of them.

All manufacturers of wood products want more and more automatic labor saving processes. We expect automation will expand in the flat stock field such as wall paneling, flooring, etc. In the low-price volume furniture field we foresee a possibility of pre-finishing before assembly.

## Wood Industry Has Gone "On the Conveyor"

**By C. W. WRIGHT**
**The Glidden Co.**

IT IS MY OPINION that the wood industry has begun to diversify and has developed new wood products to supply markets which were not largely dominated by wood products several years ago. For instance, hardboard and particle or chip board have opened new avenues of sales for the wood industry for such end uses as floor tile, exterior and interior construction paneling, pre-assembled kitchen cabinets, furniture, radio and television cabinets and others.

New finishing methods have also been introduced in the wood industry and you might say that the wood industry has gone "on the conveyor." The appearance of the pour type or curtain coater and the integrating of finishing systems into production lines has created a need for faster curing organic finishes to meet production line scheduling. The wood manufacturer is now finishing his end product in the mill and supplying his customers prefinished wood construction material and end products.

The trend to production line finishing in the wood industry has made it necessary for organic coatings suppliers to modify and improve their coatings to meet the requirements for mechanization. It is my opinion that, as a result of the new approach taken by the wood industry, significant improvements have been made in existing organic finishes; however, there has not been any major development in organic finishes for the wood industry in general. There is one possible exception to this, and that is the introduction of polyester coatings for school room furniture and some interior paneling in the past three years.

I feel that, within the next five years, you will see major developments in new organic coatings for the wood industry. Many of these developments are now under way and will be introduced to the wood market in the very near future. I believe that 100% convertible plastic coatings, like the polyesters, and the newer concepts in organic finishes, such as polyurethane and water-reducible finishes will become as common as lacquers and conversion coatings are today.

The use of water-reducible finishes in the wood industry will eliminate fire hazard, integrate more closely the finishing and curing operations in a production line, and, with the recent technological advances in water-reducible resin research, offer coating compositions that are equal to or superior to those currently on the market.

Polyester and polyurethane coatings and modifications of these coatings have such outstanding physical and chemical properties that they will allow wood manufacturers to compete in the rapidly expanding plastics construction market and at the same time offer opportunities for diversification into end products that they have not presently considered.

## High-Speed Finishing Most Significant

**By G. F. HOFFMANN**
**O'Neil Dura Co.**

FOR THE PAST FIVE YEARS, my feeling is that the development of methods as well as high quality products for prefinishing wall paneling, doors and floors on a high speed straight line production basis as well as with automation, has been a most significant step forward in the field of wood finishing.

For the relatively near future, I think improvements will be the simplification of, the adaptation of higher speed, and the goal of lower costs in the finishing of high qualtiy furniture.

## New Polyester Type Finishes for Wood

**By NEIL ESTRADA**
**Reichhold Chemicals, Inc.**

POLYESTER RESINS, firmly established in reinforced plastics and in surfacing applications, are receiving belated attention as coating materials, particularly as wood finishes.

The resins, embracing a wide and growing variety of commercial types can be "cold-cured" in films to thermosetting plastics. The cured films have hardness, color stability, durability and resistance properties approximating the characteristics of thermosetting plastics, and far outranking air-drying coatings of conventional types.

Material costs of polyester finishes are low on the basis of film-forming solids, and other economics are inherent in simple compounding and absence of non-reactive diluents.

Working life of catalyzed coatings, and the cure time for films are closely related. However, special methods of application make it possible to combine catalyst and accelerator in the coatings as applied, so that tank life of the liquid coating can be a matter of hours or days yet permitting film cure time to be a matter of minutes.

Low viscosity of the polyester resins at 100% convertible solids is advantageous in preparing solvent-free coatings which can be cured uniformly in any thickness without air or heat necessary for conversion. Styrene, or other co-reactant monomer, is an essential part of the polyester resin, and has some characteristics of volatile solvent. However, under appropriate conditions, shrinkage of wet films due to styrene evaporation is insignificant.

Oxygen has an inhibiting effect on the curing of polyester resins, and suitably modified polyester resins are required to provide adequately cured films, where these coatings are to be converted in presence of air.

Most of the continued growing interest in polyester wood finishes is for "hard-to-coat" materials, such as particle board, to provide "one-coat" finishes where present solvent-based coatings are inadequate, for "plastic-faced" surfaces where hot-pressed laminations are cumbersome and much more costly, and for coatings requiring exceptional resistance to

*Continued on Page 58*



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# a bright new light in the world of wood...

The Super Satin Surface trade mark on quality wood products represents millions of dollars saved in on-the-job finishing costs by America's builders during 1958. It represents, too, a remarkably smooth and glossified surface which greatly enhances wood's natural beauty.

The key to this miracle in wood finishing is the Super Microseal Process,† a high speed production method that utilizes wood's natural plastic . . . lignin . . . to seal and densify the wood's surface.

Where wood of every type, in any form, for interior or exterior use . . . is finished or painted, then these finishing costs are reduced by 80% to 100% through the use of the Super Microseal Process.

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| **Diamond Lumber Co.** | Portland, Oregon |
| **Farley and Loetscher Mfg. Co.** | Dubuque, Iowa |
| **General Plywood Corporation** | Louisville, Kentucky |
| **Henderson & Pollard Ltd.** | New Zealand |
| **F. Hills & Sons, Ltd.** | England |
| **International Paper Company, Long-Bell Division** | Longview, Washington |
| **Harold R. Jones, Inc.** | Eugene, Oregon |
| **Nickey Bros.** | Memphis, Tennessee |
| **Paine Lumber Co., Ltd.** | Oshkosh, Wisconsin |

**The Carborundum Co.**, United States Sales Representatives • **Reichhold Chemicals, Inc.**, Foreign Sales Representatives

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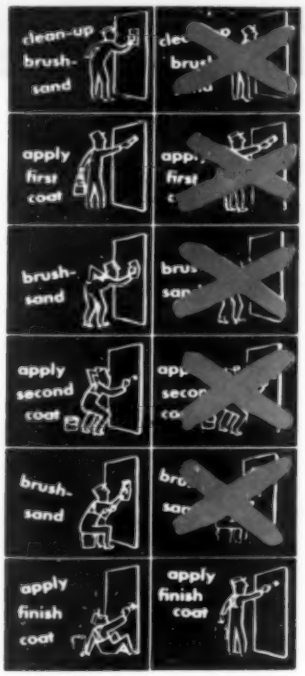


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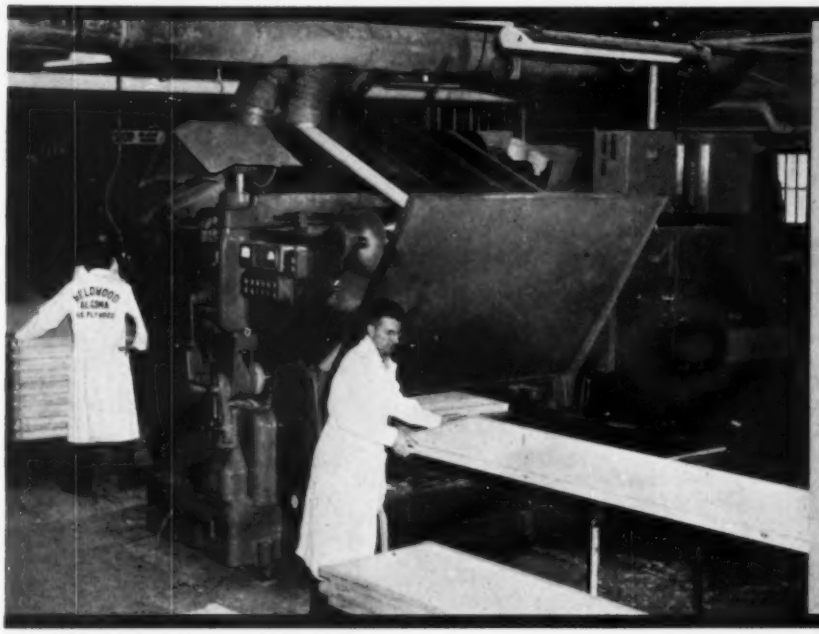
# new sanding method improves accuracy, increases production, reduces belt costs



**SPECIFICATIONS**

| | |
|---|---|
| Abrasive belt length | 20 ft 3 in. |
| Machine size | 36 in. capacity |
| | 48 in. capacity |
| | 60 in. capacity |
| | 72 in. capacity |

Feed Roll Speed . . . available from 1 to 100 fpm and up—according to your requirements.

## MATTISON NO. 456 WIDE BELT SANDER SIZES TO .0015" AT FAST FEEDS IN EITHER DIRECTION

Here's a new, high-production method for sanding core stock, door panels, and other flat work to precision finish and uniform thickness.

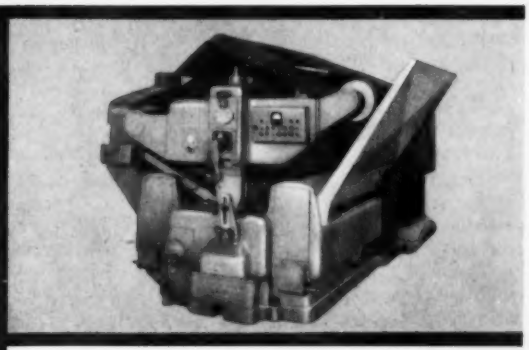
Rigidly constructed of heavy Meehanite metal, the Mattison No. 456 wide belt sander pulls up to 150 hp without vibration—maintains positive settings for sizing hardest stock to within .0015 in. over maximum width and full length. Feed rolls operate in either direction at fast feeds—let you rough, reset, and finish without costly downtime.

Unique four-roll head prevents transfer of motor pulsations to work finish. Long 20 ft belt is flexed and cooled as it cuts, providing freer cutting action and longer belt life. Belt changes are fast and easy—take only minutes.

*EXAMPLE:* At Algoma Plywood & Veneer Co., Algoma, Wisconsin, producing accurate glue-bond surfaces on edges and corners of surface door cores, bonded cupboard door cores, and similar products is a tough sanding job that requires unusual machine performance. After an intensive search for the right machine, Algoma found that no other sander could match the No. 456 for accuracy and productivity.

In a recent letter, Mr. R. P. Fulwiler, Algoma's president and general manager, said: "Since its installation, our Mattison has been running two shifts a day entirely on core stock, giving us uniform thickness throughout the core equal to any precision-type finish planer. Also, we are getting top production and added economies in sandpaper and reduced maintenance, helping to keep our sanding costs low."

To investigate first hand the production advantages of this new wide belt sanding method, call your Mattison machinery representative.



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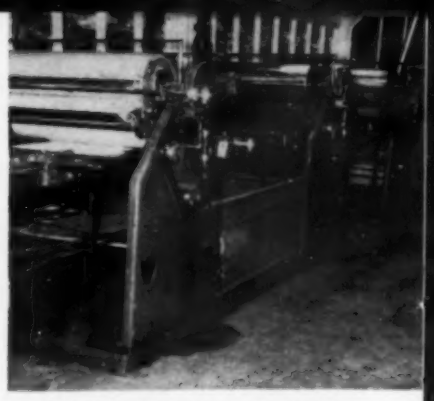
## Here's Help in Selecting Your

# FINISHING METHOD

**Older finishing systems are being modernized, unusual systems are being adapted for wood products— This quick roundup gives you a look at some of them**



GRAIN ROLLER PRINTERS at Kroehler Mfg. Co. in a new setup are followed by pressure curtain coater and roller coater which are used alternately

THE PAST FEW YEARS have seen more progress in development and refinement of finishing systems for wood products than has occurred in many years. The wood products manufacturer today can choose from a virtual 'smorgasbord of systems' in determining how best to transfer the liquid finishing materials 'from the drum to the product' most economically.

The older factory finishing methods (like air spray) are being refined to give the wood products manufacturer infinitely superior coverage and economies; newer systems (such as pressure curtain coating) are opening entire new vistas in speed and material savings; unusual systems (such as the electrostatic process) are seeking ways in which they can be of value to the wood products manufacturer.

Each of the finishing systems today in existence is 'the ideal system' for given products. However, you—like any other industrialist—cannot afford not to keep all rival, new and/or improved systems constantly in mind. The wood products manufacturer who neglects to keep abreast of the changes in the modern finishing arena could —almost overnight—be underpriced in the market place.

WOOD & WOOD PRODUCTS herewith presents a quick look at some of the finishing systems now available. Because of space limitations and variety of subject matter, the reports are necessarily brief. However, you can obtain additional information on any of these systems by writing WOOD & WOOD PRODUCTS. Much of the information has been digested from papers delivered at the June meeting of the Forest Products Research Society in San Francisco, Calif.

### AUTOMATIC SPRAYING

By GEORGE J. KNETL
Binks Mfg. Co.

ELIMINATING The "human element" by automatic spray painting introduces a labor savings, and due to the efficiency of the machines to apply only the minimum required amount of finish, you have the extra advantage of material savings.

In general, automatic machines can be classified in two basic categories: (1) – Spindle types . . . for symmetrical objects such as legs or wheel rims, and (2) – Traveling spray heads . . . for items such as plywood panels or cabinets.

Spindle machines are a closed circuit of equally spaced spindles. Each of these spindles carries one of the items through the spray cycle. They are made in various sizes, from a small table top four corner arrangement, to a complex (several hunderd feet in length) floor mounted unit. In general, a spindle machine consists of the following:

A load station where an operator places the object on the machine; A sensing device that indicates if the spindle is loaded, that is, the spray cycle will only be actuated if the spindle carries an object to be sprayed; A rotating unit that spins the object during the spray cycle; A spray control device completely adjustable to regulate the spray time; A spray station; Drying time, and an unloading station.

The other category of automatic spray machines can be called traveling spray heads. These machines duplicate the action of a hand spray gun over the surface to be finished. They are made as reciprocating units traveling back and forth across the surface either horizontally or vertically.

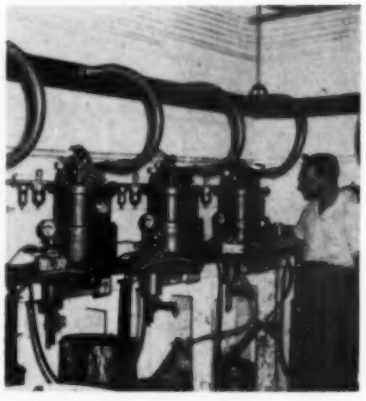
The are normally straight-line machines, but can be designed to follow the surface contour. One to four guns are mounted on the traveling carriage, depending upon the type and thickness of coating desired.

Either mechanically actuated type of air actuated guns can be used. The mechanically actuated type are used for flat surfaces and point directly at the surface. Air-actuated guns are normally angled and are used to coat an irregular surface.

The machines have a fixed travel stroke, 6 to 9 in. greater than the surface width to be sprayed. The spray stroke, however, is adjustable and shuts off at the end of each stroke to maintain a clean nozzle orifice.

Another type of traveling spray head machine is the rotary spray, consisting of either 4 or 8 arms mounted as spokes on a wheel. A spray gun is mounted at the end of each arm. The

AUTOMATIC SPRAY heads are used on leg finishing at Poinsett Lumber Co. for Singer Sewing Machine Co.



AIRLESS SPRAY pressure tanks are shown in finish supply room at Craftique, Inc.

DIPPING of parts is often conveyorized requiring no labor

PRESSURE CURTAIN COATER enables finishing of stock at conveyor speeds of up to 600 f.p.m.

diameter of the machine is a minimum of 30 in. greater than the width of the surface to be sprayed, and as this wheel rotates, the spray guns describe two huge arcs.

The arcs resemble the spray stroke of the reciprocating machines and the large diameter is necessary to maintian a uniform finish. The spray arc is adjustable and, again, as with the reciprocating machine, either mechanical or air-actuated guns are used depending upon the surface to be sprayed.

## STEAM SPRAYING

### By I. I. McGINNIS

**E. I. duPont de Nemours & Co.**

IN THE STEAM SPRAY process, superheated steam replaces compressed air to atomize the paint. Also, the steam supplies heat to the paint just at the point of atomization, eliminating the need for some or all of the reducing solvent. Superheated steam is simply steam that is hotter than saturated steam at the pressure in question. Practically, approximately 20° of superheat at the gun is required.

The advantages of steam spray that have been demonstrated include:

(1) Reduced overspray. In addition to the obvious economics, there are improved working conditions, cleaner spray areas and less spray booth maintenance.

(2) Ability to coat cavities, recessed areas and irregular surfaces.

(3) Improved application properties, by providing a wider margin between dry spray on one hand and sags or runs on the other.

(4) Additional cost reduction. Reducing thinner is minimized, superheated steam is basically cheaper than compressed air, and more area can be coated per operator hour by steam spray.

(5) The process is readily adaptable to most large volume spray operations. A minimum of operator training is required. The process is basically analogous to air spray.

(6) Rapid change over between colors that is characteristic of air spray is retained.

Synthetic enamels are being applied by steam spray to a wide variety of articles in a number of plants at present. Even nitrocellulose lacquers are being applied to wood by this process. It is a proven process that can save money.

The equipment requirements depend to some extent upon individual plant facilities. If a prospective user has plant steam available at a minimum of 60 lb. gauge pressure, all that is generally required is a strainer, separator (to eliminate water condensate) steam pressure reducing valve, a superheater, lengths of steam spray hose, and steam spray guns. Naturally, if good quality steam of adequate pressure is not available, then consideration must be given to the purchase of a steam generator that will provide steam of both good quality and consistent pressure.

## AIRLESS SPRAYING

### By EDWIN HOGSTROM

**Nordson Corp.**

IN THE AIRLESS atomization process we use heat. This is the Nordson process originally discovered and patented by Jim Bede. He found that a viscous coating material with a solvent constituent could be satisfactorily atomized if the material was first properly heated.

For example an enamel which could not be properly atomized at several thousand pounds p.s.i. when cold, could be beautifully atomized at 500 p.s.i. if the material was heated to 170-180°. The heat in addition to lowering the viscosity of the coating material, added a new force. This new force was vapor pressure of solvent at the elevated temperatures. Acting within the liquid itself, the vapor pressure caused it to expand and blow apart as the liquid proceeds from the pressurized inside of the nozzle to the atomspheric pressure which ejects the air in the nozzle.

By adjusting the solvent balance of a coating material so as to provide suitable viscosity and vapor pressure at reasonable temperatures, coating materials of all types can be sprayed with maximum efficiency.

There are many advantages to using this airless spray coating process, and a few of them are decreased labor costs and in turn increased production, ease of handling, cleaner working space, reduced heat loss. We do not need as near as much air exhaust to recapture the particles that do not adhere to the work surface and it reduces rejections and increases adhesion.

The largest saving is in coating materials itself in that we use more of the material that is purchased in applying it to the work. We reduce air exhaust, improve work area, use much less compressed air and get a smoother finish and in the case of wood finishing, less rub time.

Most all kinds of coating materials can be sprayed using the airless spray process without reformulation. It is applicable to fine finishing and the thickness of the wet film can be controlled. No special technique is necessary as most sprayers can adapt themselves to this new method within a few minutes time.

## DIPPING AND FLOW COATING

### By O. L. WEIS

**Spra-Con Co.**

BOTH DIPPING and flow coating are economical methods of applying protective or decorative coats. Both are applied without labor. Neither requires large volumes of exhaust air, thus, air replacement systems with high heating costs are not needed. Periodic cleaning is on a much smaller scale, and booth compounds are not required. No expensive compressed air is needed. These cost saving ad-

vantages are the reasons for the growth of these processes.

Dipping in its crudest form, sees plunging of small parts into open-top 55-gallon drums or similar containers, and then hanging of the parts from racks, where they are allowed to drain, flow-out and dry. From this basic principal, dip systems range up to tank arrangements in which the product is lowered automatically into a paint tank. The tank may be equipped with heating, cooling, filtering and agitation sysems.

Conveyors used in conjunction with automatic dip systems, may be conventional trolley conveyors, or cross bar conveyors which lower the product into the material tank. They may be power and free type of conveyors, with a drop section of track, to lower the ware into the liquid. On occasion, a dip tank is raised up around the ware to submerge it.

The conveyor or dipping device, may be arranged with a controlled withdrawal rate—usually very slow—so that surface tension of the material on the ware can pull the excess material from the part as it is raised.

A very basic flowcoat system, is the mere flooding of an article by pouring a bucket of paint over it or by flowing paint over it with a garden hose.

From this primitive arrangement, flowcoating has grown to specialized machines equipped with heating, cooling, filtering and agitation features designed to coat such complex ware, with hidden surfaces, as fan wheels and housings, and appliances.

## PRESSURE CURTAIN COATING

### By RICHARD L. CAMPBELL

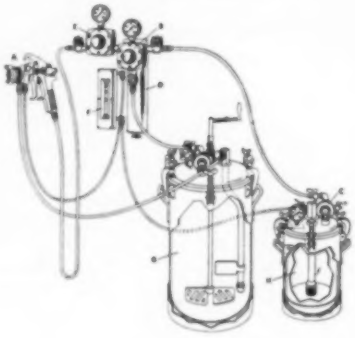
**Wilco Machine Works, Inc.**

THE CURTAIN COATER is not the panacea of finishing—it won't do all things to all products with all finishes. But more than 60 of our machines have been installed coast-to-coast and in Canada, and then are developing histories of big savings in finishing material, labor, and uniformity of furniture panels, plywood, hardboard, insulation board, ceiling tile, flooring, siding, etc.

The pressure curtain coater, which has been patented in Europe and for which American patents have been applied, involves more than flow coating or pouring. The inventor, a Swiss furniture manufacturer, evolved a machine which allows finishing material to flow through an orifice, or slot, and passes the stock through the resultant waterfall of material.

Panels can be finished at up to 600 feet per minute in curtain coating. With some materials a speed of 60 feet per minute can be had with curtain coating. The high speed of curtain coating is not the disadvantage it first would seem to be. There is no requirement to dry or bake stock as fast as it is curtain coated. It might be that oven speed results in two pieces of finished product per minute. The curtain coater could coat these pieces in a few seconds. It isn't necessary to stop and start the curtain coater—just feed it two pieces per minute, or whatever oven speed is.

## CATALYST SPRAYING



THE CATALYST SPRAY SYSTEM provides a practical and convenient means of handling materials which either cannot be premixed or have insufficient pot life to allow application in the conventional spray manner.

The heart of this system (by DeVilbiss Co.) is the spray gun (*A*). It is built so that two materials are mixed in the spray pattern—after they both have left the gun—and before they reach the surface. This type of instantaneous mixing in atomized form eliminates the handling problems of quick setting and short pot life. The basic material enters the gun near the nozzle and is expelled through the fluid tip in the conventional manner. The catalyst or additive is admitted into the atomizing air through a metering venturi at the side of the head, becomes thoroughly mixed with the air and leaves the gun through the center air jets that atomize the stream of basic material.

The critical ratio of catalyst or additive to the basic material is closely and accurately maintained by multiple regulators and a flow meter (*B*, *C* and *F*). All components of the system are precision made and specially designed to provide the fine adjustments necessary for the thorough and critical mixing these materials require.

In actual use the system operates much the same as a standard spray outfit. There are no new techniques for the operator to learn—except making the original pressure and flow adjustments. These adjustments, once made, are automatically maintained for the duration of spraying. They can be recorded and re-established for identical performance on future runs.

Both the basic material and the catalyst or additive are fed to the gun from tanks under controlled pressure. Because the flow rate of catalyst is more critical, its supply is controlled by two pressure regulators (*B* and *C*) which eliminate any variation caused by fluctuation in the main line air pressure. The air cleaning and regulating equipment (*D*) is standard. It is connected so that the atomizing air for the spray gun also receives double regulation (*B* and *E*).

A flow meter (*F*) is installed in the catalyst or additive line so that once the desired flow rate is established, it can be continuously checked visually.

The pressure feed tanks (*G* and *H*) used in this system are similar to standard tanks except for materials used for parts in contact with fluids.

## COATING AND GRAINING

### By PAUL E. LEARY

**Wolverine Finishes Corp.**

THE ROLLCOAT method of application has been accepted as the most feasible from several standpoints, the most important of which is the characteristic effect that can be created through special rollcoating techniques that are easily developed. Manipulation of the machine to provide proper roll speed and pressure for running a suitably formulated material can result in a unique sealing effect with grain figure contributing to the appearance. Once established these factors allow for reproducibility on a few sheets or on thousands of feet of plywood.

The rollgrain print system is the method whereby foundation woods such as poplar, fir, gum veneer, etc., as well as hardboard and particle board are converted by finishing materials into surface patterns simulating finer woods for cabinet making, paneling, and even low-cost goods furniture. The fine wood grain pattern is reproduced by means of engravings in a plane (two-dimensional design).

Materials used in order of application include filler, one or two coats of basecoat, ink, sealer, and clear top coat. Shading and glaze operations are optional in a wood grain system being performed over the sealer prior to final coat.

**the modern synthetic coating for pre-finishing wall board and flooring**

- **Flame resistant**
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The complete DeBurgh System conveys your product through the entire finishing operation and delivers it to the shipping room door. Inspection, sanding, spraying, toning, drying, rubbing, upfitting and rework all can fit into a predetermined production schedule.

Recently, a complete DeBurgh system was installed at Craddock Furniture Co. Conveyor 1,690 feet long, winding through two floors. This system was complete! And it was completed in one week! On the eighth day this system was in operation!

Your operation can be small or large. It can involve finishing products of varying size. No matter what your situation, the flexibility of the DeBurgh system enables us to adapt it to your requirements.

***WITH A DEBURGH —***

1. **You'll do your finishing faster, with less labor, less fatigue.**
2. **You can save 50%, or even more, on finishing labor cost.**
3. **You'll increase your output. There's no lost time. Your labor is kept productively employed. It's not unusual for DeBurgh to pay for itself in 10 to 15 months.**
4. **You can save up to 35% in floor space.**
5. **You need make no costly plant alterations.**
6. **Your own maintenance crew can do the installation, can add to or alter your production lines as your finishing requirements change.**

It costs you nothing to find out what DeBurgh Conveyorized Finishing will or will not do for you. You owe it to yourself to investigate. Drop us a line today. Ask for Data File S-99.

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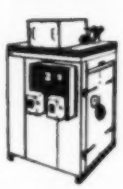
## . . . FOR THESE ADDITIONAL FINISHING

**Standard individual items . . . or complete systems . . . Koch has the facilities to provide for all your finishing requirements . . . designing, engineering, fabrication, supervision. How can we be of assistance to you? Drop us a line.**



**OVENS**

**Koch offers you a complete line of cabinet, shelf and truck ovens — pre-engineered, packaged, ready for installation with controls, safety and overload features built in.**

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Both large and small items may be run on the same DeBurgh conveyor. Pieces can be stopped temporarily or halted indefinitely. Products may be assembled, finished, cooled, rubbed, trimmed and packed for shipment without leaving their original pallets.

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Your plant must be efficient to meet and beat competition. Your products must be well-finished, at competitive costs. Nothing is more efficient, more economical or gives you better finishing than the DeBurgh Conveyorized Finishing System. Small plants with DeBurgh operate with the same efficiency as large ones Installation is made quickly without costly shut-down. DeBurgh is easy to maintain — no complicated machinery to get out of order.

You can't afford to be without the DeBurgh Conveyorized Finishing System. Let Koch give you a fast estimate. No obligation. Write for Data File S-99.

**Some of the Many Users of DeBurgh Finishing Systems**

| | |
|---|---|
| **Grand Rapids Chair Co.**<br>Grand Rapids, Michigan | **Bergsma Brothers**<br>Grand Rapids, Michigan |
| **Herman Miller Furniture Co.**<br>Zeeland, Michigan | **Gerard Collins, Inc.**<br>Montmagny, Quebec, Canada |
| **Craftique, Inc.**<br>Mebane, North Carolina | **Craddock Furniture Corp.**<br>Evansville, Indiana |
| **Kent-Coffey Furniture Mfg. Co.**<br>Lenoir, North Carolina | **Sprague & Carleton, Inc.**<br>Keene, New Hampshire |
| **Hekman Furniture Co., Inc.**<br>Grand Rapids, Michigan | **Modern Wood Products**<br>Brooklyn, New York |
| **R-Way Furniture Co.**<br>Sheboygan, Wisconsin | **Ivers & Pond Piano Co., Inc.**<br>Memphis, Tennessee |
| **Extensole Corp.**<br>Sparta, Michigan | **Springfield Cabinet Works, Inc.**<br>Springfield, Ohio |
| **Mersman Brother Corp.**<br>Celina, Ohio | **Winter & Company**<br>New York, New York |
| **Davis Cabinet Co.**<br>Nashville, Tennessee | **Hamilton Mfg. Company**<br>Two Rivers, Wisconsin |
| **Stanley Furniture Co.**<br>Stanleytown, Virginia | **Dominion Electrohome Ind. Ltd.**<br>Kitchener, Ontario, Canada |

**GEORGE KOCH SONS, INC.**

**Evansville 4, Indiana**

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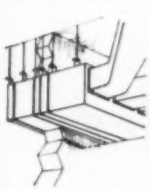

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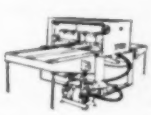
**FLOW COATER**

For many purposes the Flow Coater is the most economical finishing method . . . saving floor space, manpower and finishing material. Mechanical controls govern viscosity, temperature, cleanliness.



**PRESSURE CURTAIN FINISHING LINES**

Koch is prepared to engineer and build for you Pressure Curtain Finishing Lines to enable you to get the maximum benefits from your investment.

**New Finishes**
*Continued from Page 48*

solvents, moisture and many chemicals.

### Why Polyurethane Coatings for Wood?

**By L. L. McGINNIS**
E. I. duPont de Nemours & Co.

ALTHOUGH THE BASIC chemical reaction of the polyurethane coatings has been known more than ninety years, it is only during the last few years that coatings of this type have been exploited.

There are five types of polyurethane coatings now in use.

(1) A two-package system of toluene diisocyanate and polyhydroxy compound that is mixed just before application and cured at room temperatures.

(2) A two-package system of reacted diisocyanate resin, whose reactivity has been chemically terminated, and a catalyst such as a tertiary amine or a metal compound such as cobalt napthenate that is mixed just before application and cures rapidly at room temperature.

(3) A one-package finish where the more reactive groups of the toluene diisocyanate are chemically blocked. The finish is applied, then heated to 285°F. or more to release the blocking agent and allow the polymerization to proceed.

(4) A one-package system where the diisocyanate polymer has had its reactive groups terminated chemically. This material is applied and reacts with moisture from the air to produce the curing.

(5) A one-package system that is essentially a drying oil reacted with diisocyanate to upgrade speed of dry, hardness and abrasion resistance.

A polyurethane coating, properly formulated, produced, handled and applied, gives a clear finish on wood that is so tough that marring of the finish is almost impossible. The best demonstration of abrasion resistance is by means of the Taber Abrasion Test, where the polyurethanes are from two to 20 times better in wear resistance than conventional finishes.

### How Do Acrylics Fit In Wood Industry?

**By GEROULD ALLYN**
Rohm & Haas Co.

SO FAR AS I KNOW there has been little or no research work done on the factory application of acrylic finishes to wood. The particular finishes discussed at the recent Forest Products Research Society meeting were emulsion type finishes which are best suited apparently for application to a home or other wooden structure by brush, spray or roller. These apply much like conventional oil based paints, and while there is no particular reason why they could not be applied in a factory, there hasn't been too much done along these lines so far as I know.

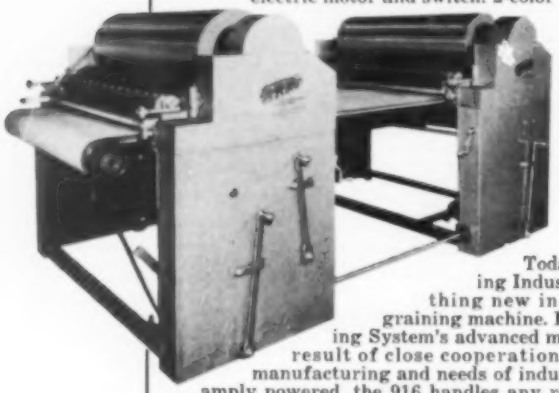
One limitation would be that we think it highly essential that an oil based primer be applied to the wood before use of any type of emulsion topcoat. Since these are invariably slow drying it would be rather difficult to handle this on a factory basis.

If it were possible to get a good oil based primer which would dry rapidly then I think the chance of using an acrylic finish as a factory finish would be very good. The acrylic finish will dry rapidly merely by evaporation of water and this can be accelerated by high temperatures.

*EDITOR'S NOTE: Above articles by Estrada, McGinnis and Allyn were digested from papers given at the recent Forest Products Research Society meeting in San Francisco.*

NEW 50" 2-COLOR GRAINING PRINTER

Quick facts on the new 916 2-color printer: Handles material up to 50" widths... cylinder diameter 16". Also, may be interchanged on the job to handle cylinders of 9" or 12" diameter. Quick change doctor blade, conveyorized feed system, powered by explosion proof electric motor and switch. 2-color register.



Today the Woodworking Industry is offered something new in a modern 2-color graining machine. It's the Roto Finishing System's advanced model No. 916 ... the result of close cooperation between machine manufacturing and needs of industry. Sturdily built, amply powered, the 916 handles any receptive surface ... wood, plywood, composition board, paper or metal. Conveyorized feeds speed handling at variable rates up to 100 ft. per minute. Printing cylinders may reproduce any desired wood or other pattern in flawless facsimile on the printed surface. Finishes lower grade of material to high quality finish, thus increasing its value and market potential.

Roto Finishing Systems produces 13 different graining and coating machines, equipment and cylinders for the woodworking industry. Write now for further information.

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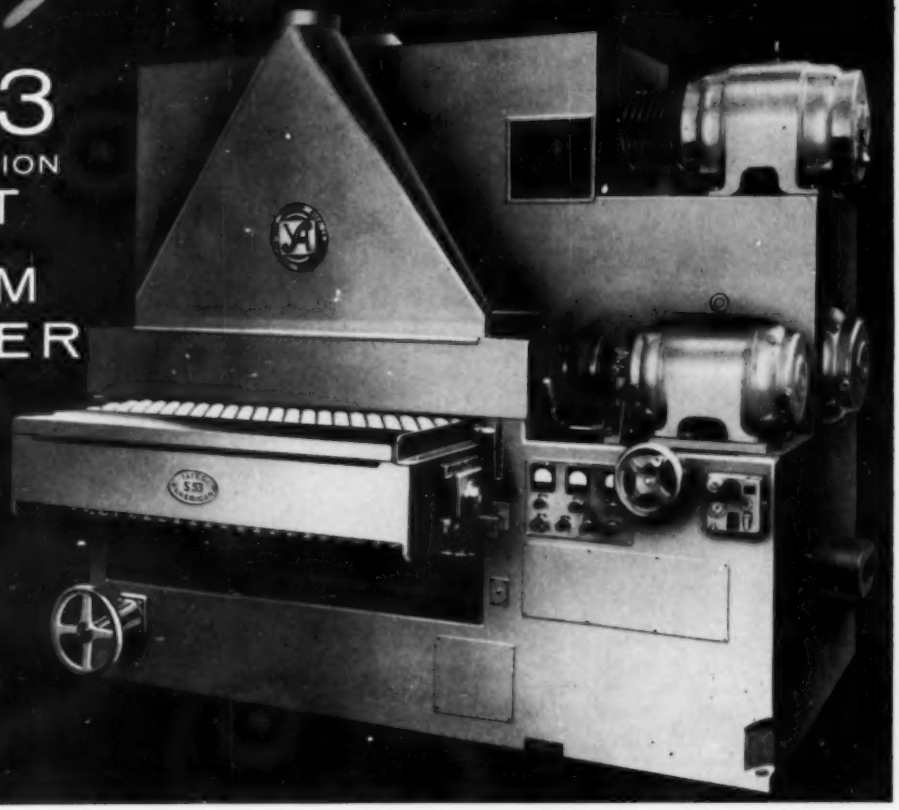

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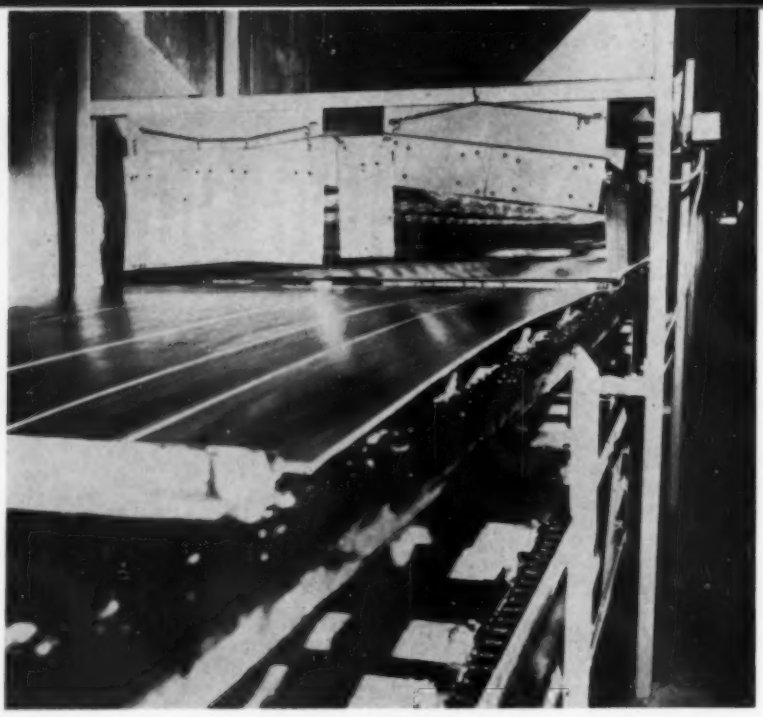
*ALL TYPES AND SIZES OF WOODWORKING EQUIPMENT... LARGE OR SMALL*

# INFRARED in Finishing

By IRA J. BARBER

Fostoria Corp.



**RECENT INFRARED OVEN** installation at Plywood Finishing Corp., Brooklyn, N. Y., is 75 ft. long and dries clear top finish coats on panels at rate of 35 f.p.m. Oven is divided into three zones, each accurately controlled by electrical devices to vary heat

INFRARED OR RADIATION FINISH drying is basically the most efficient method of product heating. This is so because it heats the object directly, without the need of an intervening medium or carrier.

It is generally not possible to transfer heat by any one method to the total exclusion of other methods. Even in conventional "hot rooms," the fact that walls are at a higher temperature than the initial product temperature automatically accounts for the radiation of some heat to the product.

To understand the advantages of radiant heating, it is necessary to know that pigmented films are relatively opaque to high temperature radiation, approximately 80% of the radiated energy being absorbed in the first mil thickness. Clear film, lacquer, varnish and enamel, however, transmit radiant energy readily through films up to 10 mils thickness, and impinge upon the underlying wood surface with little loss in vigor. Here the rate of radiant penetration is greatly reduced but, depending on the type of wood, continues to penetrate the wood for distances which have been measured up to 5/16 in.

Such penetration will be modified, obviously, by any surface treatment applied, such as filler, sealer, etc. It is therefore apparent that radiation can readily pass through a clear surface coat, be largely absorbed by an opaque undercoat, and thus transmit heat by conduction both ways from this opaque layer. While this would presumably be beneficial from the standpoint of the surface coat—eliminating case hardening, keeping the surface open for the escape of solvents, and setting up the film from the inside out in a manner directly opposite to that resulting from convection-transferred heat—there may be instances where the reverse gradient at the interface may produce some unexpected and, perhaps, undesirable effect. On the other hand, harder and more dense coats are possible.

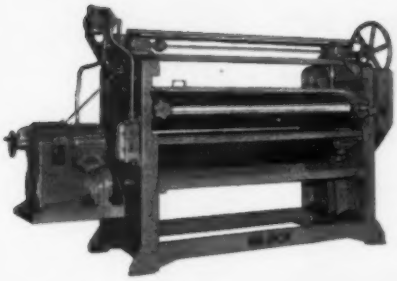
In a radiant process, the sensible heat is radiated at and into the product surface. The interface is not at the film surface, at least in the case of clear coatings, but is primarily at the wood surface. The latent heat flows in a reverse direction, out from the interface. So does the heat loss to the air. A secondary convection interface exists at the film surface here—heat transferred from the wood surface by conduction serves to supply the heat of vaporization and to raise the temperature of the air in contact with the surface. The result is a more rapid temperature acceleration in the film, a faster rise in the partial pressure of vapor in the product, and a greater humidity gradient. Thus, the initial drying rate is relatively fast. Where the air in contact with the surface is constantly replaced, this drying rate increases with the film surface temperature. This temperature, however, tends to be held down by its twin heat losses, and will always be cooler than the bulk of the product. Since the surface is always hotter than the air in contact, no condensation is possible, no matter how humid the oven air. In combination with air temperature control, however, any desired drying rate may be achieved.

It can be said that an electric radiant-type oven is easier to control because: (1) the main concern is heating the product and not the air; (2) there is no lag in time in heating the source or in cutting off the energy (lamps are at full rating output instantly when turned on and cease to heat the product instantly when turned off); (3) zoning can be done throughout the length of the oven as well as throughout the cross-section. In the latter case, for example, the lower row of lamps can be of greater wattage if a part of the product needs greater heat while in areas where the product requires less heat, smaller wattage lamps can be used. Also, it might be advisable to introduce more heat in the first few feet of an oven and less in the remainder, again by substituting lamp sizes.

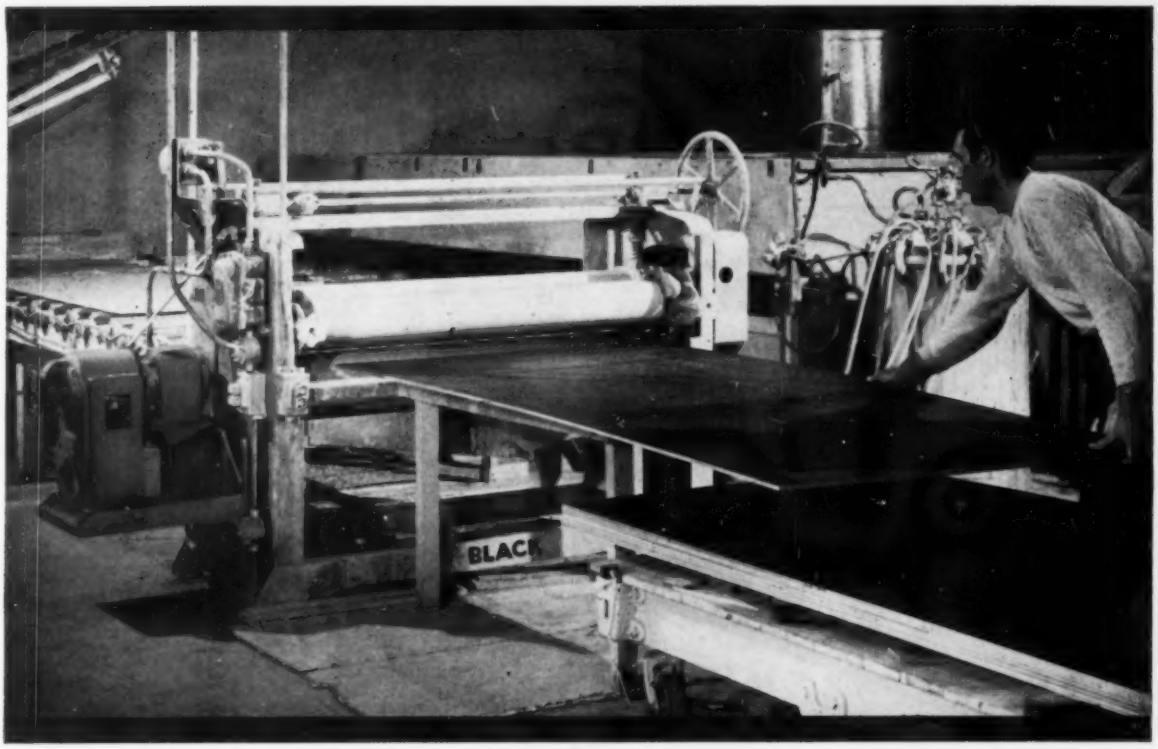
From the standpoint of safety, radiant-type ovens, like other ovens, can be equipped with automatic devices to purge the oven air before the oven is put in operation, and to continue to purge it for a predetermined time after the oven is shut off. Also, radiant-type ovens can be tied in with moving conveyor controls, so that if there is a conveyor stop, the oven automatically shuts off or can be switched to reduce voltage. In either case, the change is instant, eliminating product damage.

Since infrared ovens are usually built of standard basic parts, they can generally be recontoured in shape, or added to in length, with a minimum amount of expense. Often an infrared oven can accommodate a new line of products by revamping the lamping pattern, which is a simple and inexpensive procedure. Or the change in the setting of the oven percentage timer may be all that is necessary to give the radiant oven a new range.

*EDITOR'S NOTE: Digest from paper delivered at 1959 F.P.R.S. meeting in San Francisco.*



Black Brothers heavy duty roller coaters apply paints, lacquers, finishes, sealers, sizes, varnishes, stains, waxes, fillers, protective coatings, base coats, drawing compounds and other coatings to flat work such as wood, metal, plywood, composition board, hardwood, plastic, cardboard, cement board, etc.

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**0-4½" Thickness Adjustment**

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Speed — accuracy — cleanliness — economy . . . you benefit *all* ways with Black's roller coaters. These heavy-duty machines are precision-engineered to assure extra fine film thickness control. Rugged, rigid construction eliminates costly production line breakdowns, prevents waste, maintains dependable high quality production. Put a versatile Black's roller coater to work for *you*. There's a model to do *your* job more efficiently, more economically. Write today for descriptive literature.

**THE BLACK BROTHERS CO., INC., Mendota 5, Ill. Since 1882**

# FIELD APPLICATIONS

**Here are carefully selected thumbnail case histories on practical new and improved methods and ideas for wood finishing**

QUICK CHANGEOVER facilities in new booths saves two hours daily at Riggs Sales Co.

## Large, Versatile Booths Help Double Production

PRODUCTION has been doubled and the time required to make changeovers has been drastically cut in the finishing of wood legs and bases for furniture and television sets at Riggs Sales Co., Gardena, Calif., by means of three new spray booths.

The booths are dry-type finishing facilities, two with 16 x 9 ft. of work space, and one with an 8 x 9 ft. A notable feature is a system of four valves, any one of which can supply lacquer or stain of any desired type to all three booths. Because of this and the booths relatively large work areas, the company can now finish 50,000 maple, ash, alder, and cedar legs daily —or about twice as many wood components as it could coat in former spray booths.

Colors for consecutive production runs can now be obtained simply by turning appropriate valves on and off; and changeovers for additional runs can be accomplished in five minutes while finishing is being done, simply by using quick disconnects to attach valves that are not in use at various times to different finish reservoirs.

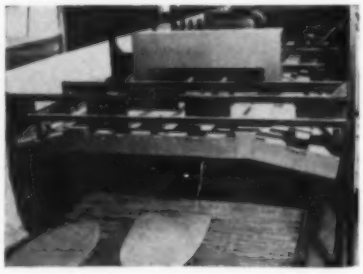
According to Pat Bell, plant manager, quick-changeover features of the booths save about two hours of production time daily.

To provide sufficient air pressure for the booths' 24 spray guns, a new 20 h.p. compressor is now being operated in conjunction with three previously used 5 h.p. compressors. Other accessories of the booths include ten pumps and four pressure pots.

In the immediate future, plant officials expect to achieve further finishing cost reductions by installing accessories for hot spray work. Also being studied is the use of mechanized spray equipment to minimize labor requirements.

*(Manufacturers)*

(911) Spray booths .....Binks Mfg. Co.
(912) Compressors .....DeVilbiss Co.; Kellogg-American Co.



BASE AND FINISH COATS dry as table tops are conveyed through 7 to 14 ft. long infrared ovens at Cleveland Table Co.

## Infrared Ovens Prove Flexible, Versatile

EVERY ONE OF NINE infrared electric ovens installed during the past year in the Cleveland Table Co. plant at Selma, Ala., has paid for itself in less than 90 days through increased production, according to J. E. Meek, general manager.

These ovens, 7 to 14 ft. in length, are used for drying base coat before printing and also for drying finish coatings after printing. It has also been found that when some of the ovens are used as booster ovens they greatly step up production of the company's convective ovens at little cost and by using very little space.

Because of the 7 to 14 ft. length —it is possible to move ovens from one conveyor line to another whenever necessary, thus gaining a great deal of flexibility on production lines, according to Meek.

*(Manufacturer)*

(956) Infrared ovens ..Dry Clime Lamp Corp.

COMING THROUGH CURTAIN of primer on pressure curtain coating machine, furniture panel heads for conveyorized infrared drying oven at Kroehler Mfg. Co.

## New, Conveyorized Line Speeds Work, Saves Material

AN ENTIRELY NEW, highly conveyorized finishing system—which utilizes spray, pressure curtain coating, graining and roller coating as well as infrared drying ovens—recently has been completed at Kroehler Mfg. Co., Louisville, Ky. Used to finish parts for dining room, bedroom and occasional furniture, the new line is helping speed operations and save both labor and materials.

*(Editor's Note: Complete details and photos of the new finishing system at Kroehler's Louisville plant will be carried in a major feature article in the October issue of* WOOD & WOOD PRODUCTS.)

The finishing system is unusual in that it includes a variety of methods for finishing—each used where the particular method works most efficiently. In reality, there are three separate finishing lines: (1) the furniture panel line; (2) the small parts line; and (3) the assembled case goods finishing line.

The furniture panel line is the longest. In-the-white panels first go through a pressure curtain coater for sealer application at the head-end of the continuous line. They then hit a section of roller conveyors followed by a belt conveyor which carries them through a brief flash-off period and then into an infrared oven. Then, at the overall rate of several feet per minute, the panels progress through: (a) operator sanding (with portable sanders); (b) through a second pressure curtain coater for the ground coat; (c) through short flash-off and into the second infrared oven; (d) into sanding; (e) into the print room where one of three roller graining units may apply any of several woodgrain patterns; (f) then through the third pressure curtain coater or through a roller coater for final clear sealer application; (g) then into a short flash-off and into a third infrared oven; and (h) into sanding of the opposite side of the panels which are

then started over on the line or, if both sides have been finished; and (i) to the vertical grain printers for application of the edge grain.

The small parts line starts with a spray booth operation, then parts go onto a belt conveyor, through infra-red drying and to printing on the edge grainer.

The assembled case goods finishing line (see photo with story on conveyorization within Progress Report section) may well become one of the most revolutionary ideas to come from Kroehler's new system. Here, pallets carrying completely assembled case goods are revolved as they pass through a giant oven which has walls and a ceiling of infra-red units.

*(Manufacturers)*

**(966) Pressure curtain coaters ...Gasway Corp.**
**(967) Finish materials ...American-Marietta Co.**
**(968) Infrared ovens ....Dry Clime Lamp Corp.**
**(969) Roller grainers ....Hamant Tool Co., Inc.**
**(970) Roller coater .....Gasway Corp.**
**(971) Edge grainers ....Schmutz Mfg. Co., Inc.**
**(972) Spray booths, equipment ..Binks Mfg. Co.; DeVilbiss Co.**
**(973) Conveyors .....Conveyor Systems, Inc.**

**PUSHBUTTON MECHANISM enables raising and lowering pressure-tank tops at California Furniture Shops, Ltd.**

## Six Pressure Tanks Save 8 Hours per Day

SIX NEW PRESSURE-TANK installations with pneumatic lid lifts are currently saving over eight man-hours daily at California Furniture Shops, Ltd., Los Angeles.

The tanks circulate stain and lacquer coating materials to and from a centralized storage station and six conveyorized water-wash spray booths.

They have replaced conventional pumps and pressure pots; and, because of their automatic lid-lift feature, they make it possible to change pressure tanks at any given station in a period of three minutes or less. Besides saving time for maintenance personnel, this greatly reduces production losses due to prolonged changeover intervals.

When a tank is empty, all a maintenance man has to do is push a button in order to elevate its lid and agitator out of the way almost instantaneously. Then, after shoving the empty tank to one side, he maneuvers a 50-gallon container full of ready-to-use finish into the proper position with a hand truck and presses a second button which lowers the lid over the replacement tank.

Thereafter, tank input and output controls are adjusted in accordance with pumping requirements by referring to two conveniently-located pressure gauges as spray work is resumed. *(Manufacturer)*

**(913) Pressure tank tops .....Binks Mfg. Co.**

**ROLLER COATER for applying pigmented lacquer or water soluble finish to hardboard TV cabinet backs is followed by drying oven equipped with heat bulbs**

## Roller Coater, Drying Oven for Hardboard Finishing

A ROLLER COATER followed by a conveyorized oven equipped with heat lamps speeds finishing of hardboard TV cabinet backs for Cortland Industries, Inc., Frankfort, Ind.

The firm specializes in hardboard fabrication. Die-cut backs for TV cabinets are first put through a roller coater which applies a coat of pigmented lacquer or water soluble finish. The backs continue onto a conveyor which carries them directly through a drying oven equipped with banks of heat bulbs. The entire operation for the one-coat finishing line operates as fast as it can be fed and tailed.

The dried panels next go to a silk-screening operation for application of the brand names and instructions on the TV backs. A conveyorized wicket dryer is used to hold the panels while the ink dries.

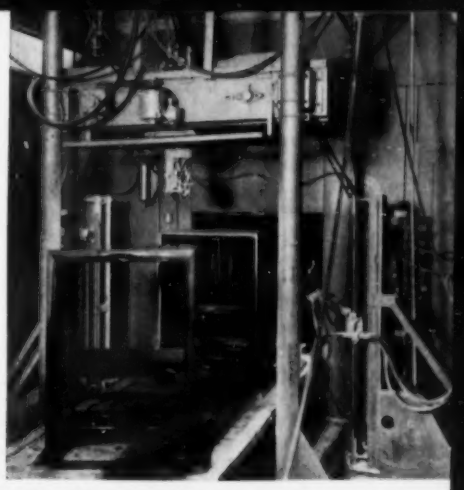
*(Manufacturers)*

**(980) Roller coater ....Advance Process Supply Co., Inc.**
**(981) Heat bulbs .....General Electric Co.; Westinghouse Corp.**

## Automatic 3-Way Spray System Ups Output

A NEW FINISHING SYSTEM featuring automatic spray painting equipment has reduced rejects 10-15% and cut labor and material costs at the Monticello, Ind., television cabinet plant of Radio Corporation of America.

Key part of the system is a three-gun automatic spray setup which applies the final coat of clear lacquer to



**IN AUTOMATIC 3-GUN spray setup, cabinet pallet trips switches to actuate two guns which travel vertically to spray side panels and gun mounted over cabinets which moves horizontally to spray tops**

cabinets. Automatically positioned on a steadily moving conveyor, cabinets enter a specially designed down-draft water wash booth equipped with two vertical and one horizontal automatic reciprocating spray units. Just before passing the first spray station, the skid on which cabinets are traveling encounters a cam which actuates automatic spray guns on each side of the cabinet.

Two spray guns constantly move up and down in a vertical path slightly more than the 38½ in. of the cabinets' height. The only time lacquer is sprayed is when the cabinet skid triggers the cam. Each side of the cabinet receives about 8 to 10 strokes from the guns, which are mounted approximately 8 in. from the work.

*(Manufacturers)*

**(932) Automatic spray guns, water wash booths, related finishing equipment...Binks Mfg. Co.**
**(933) Finish materials ....Interchemical Corp.; Reliance Varnish Co.; American-Marietta Co.**
**(934) Roller Conveyors .....Standard Conveyor Co.; E. W. Buschman Co.**
**(935) Roller grain printers ....Hamant Tool Co. Inc.**

**IN ONE OPERATION horizontal roller coater finishes both sides of plywood panel with two different coating materials**

## Fast-Drying Grain Finish Boosts Panel Production

FAST-DRYING, MULTI-COLORED GRAIN finishes for Philippine mahogany ply-

wood panels have enabled Plywall Products Co., to increase production as much as 350% annually in two plants at Corona, Calif., and Ft. Wayne, Ind., during the past four years.

Initial finish is an opaque base coating, the hue of which is varied in accordance with colors specified for grain. This coat is applied to the face of the panel in a horizontal roller coater, which finishes the panel on both sides with two different coating materials in one operation. The back side receives a moisture-resistant seal coating which has no decorative effect.

After leaving the first coater, panels are placed on special fixtures and taken into a gas-fired oven where their base and seal coatings are baked at 100° F. for 15 minutes. After sanding, panels go through a multiple printing or graining operation which requires the use of two to four roller coating machines in tandem.

*(Manufacturers)*

**(953) Roller coaters .....Black Bros. Co., Inc.**
**(954) Wide belt sander .....Timesavers, Inc.**
**(955) Automatic stroke sander ..Curtis Machine Corp.**

**DOORS ARE SPRAYED and grained vertically in unusual setup at Robin Wood Products**

## Combined Roller, Spray Setup Boosts Door Output

AN UNUSUAL ROLLER and spray finishing line is enabling Robin Wood Products, Pomona, Calif., to apply synthetic grain finishes to hollow-core doors in less than half the time once required.

It comprises a 260 ft. chain conveyor, a high-speed graining machine, fixture-mounted spray guns, and a 22 x 60 ft. gas oven which is indirectly fired.

Once it is in operation, the only personnel required to man the line are two workers who load and unload the conveyor.

Each door is finished in two stages, during which it travels the length of the conveyor twice. In the first stage, the graining machine is by-passed so that a more or less conventional primer can be applied with fixture-mounted spray guns and then dried. In the second stage, synthetic grain and a finish coating are applied and dried.

No forced drying of the grain is necessary prior to the application of the finish coating, because the graining material is a fast-drying lacquer similar to the inks used by printers. Firm produces about 8,000 doors per month.

*(Manufacturers)*

**(914) Graining machine .....Roto Finishing Systems, Inc.**
**(915) Spray guns .....DeVilbiss Co.**

**PANELS UP TO 55 IN. WIDE are put through 8-drum double-deck sander by special mechanical feeder**

## 8-Drum Sander Handles 55 in. Wide Panels

SANDING OF ESPECIALLY wide panels of glued-up lumber is accomplished by means of an 8-drum double-deck sander at Edward Hines Lumber Co., Hines, Ore.

Panels up to 55 in. wide are put through the sander by a special mechanical feeder. After sanding, panels are transferred automatically to next phase of operation where they are trimmed to width.

Sander is one of many up-to-date machines in company's streamlined operation producing glued-up panels precision-tailored to order.

*(Manufacturer)*

**(952) Eight-drum sander ....Solem Machine Co.**

## Big Materials Saving Cited for Curtain Coaters

SUBSTANTIAL SAVINGS in finish materials and high speed of production are the two outstanding advantages cited for pressure curtain coating lines for flat panels at Brunswick-Balke-Collender Co., Kalamazoo, Mich.

One line utilizes a curtain coater to apply a prime coat to flat panels, and the other is used to apply a pigmented top coat. The flat panels put through the finishing systems are combination wood-hardboard hollow core furniture parts or solid hardboard panels for sliding doors. The Kalamazoo plant specializes in school furniture.

The overall line for the top coat is

**PRESSURE CURTAIN COATER is preceded by preheating oven in line for finishing hardboard panels**

about 40 ft. long. Panels first enter an infrared pre-heating oven (about 12 ft. long) which has a temperature range up to 125° F. Heat in the oven can be carefully controlled to suit the particular panels being run. Once set, a timing mechanism controls the heat constantly.

After leaving the belt-conveyorized pre-heating oven, the panels go directly through the curtain coater.

"The finishing lines are excellent for flat panels," said Jerry Gruel, project engineer, "in that they can be operated just as fast as workers can feed and unload them. Also, we estimate our savings in finish materials to be around 40%."

*(Manufacturers)*

**(975) Pressure curtain coaters ...Wilco Machine Works, Inc.**
**(976) Oven .....Granco, Inc.**

**ROLLER PRINTER applies grain design to hardboard furniture panels which are then put immediately through roller coater for sealer coat at Timely Furniture**

## Graining, Rubbing Setup Produces High-Lustre Tops

A SYSTEM for grain-printing combined with a final rubbing line for furniture with hardboard surfaces eliminated the need for more expensive plastic laminate tops at the Timely Furniture Div., Huntingburg (Ind.) Furniture Corp.

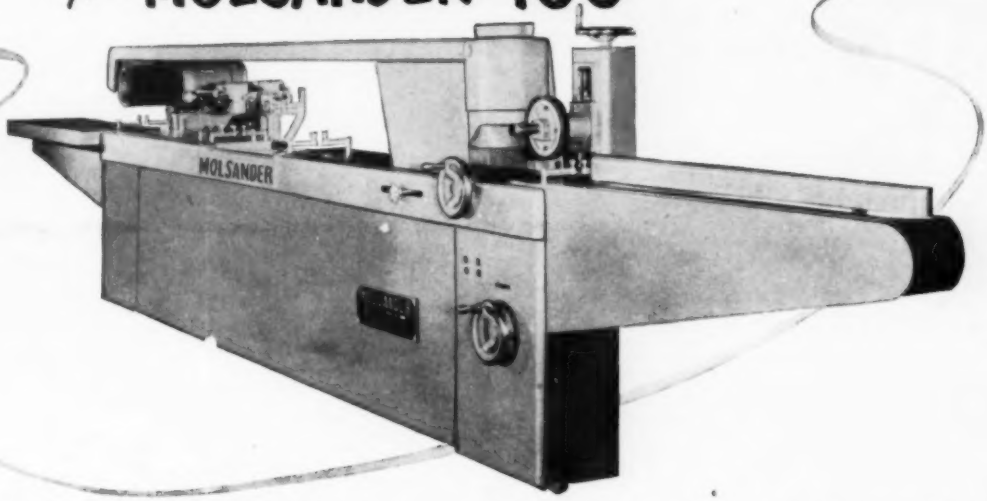
The firm produces economy and promotional bedroom suites and a correlated furniture line which is made mostly from wood-frame, hardboard-surface panels. At one time, all tops for bureaus and other pieces were covered with wood-grain plastic laminate.

"Since perfecting our grain print-finishing setup and a special rubbing-buffing line," says Corporation President R. H. McMurtrie, "we have come up with a hard, high-sheen top

*Continued on Page 68*

HERE'S A HIGH PRODUCTION SANDER FOR FURNITURE, INTERIOR TRIM AND WOODWORKING PLANTS

# The MOLSANDER '100'



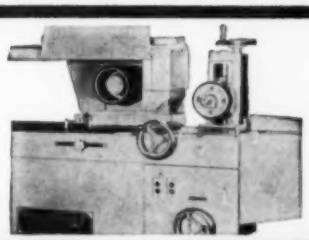

You cut sanding time and get higher quality sandings with the Molsander Model 100. It is the highest production moulding sander on the market today.

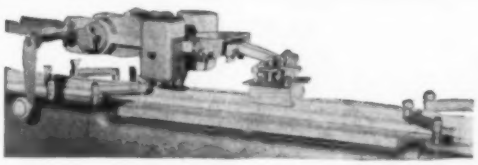
Because contours can be sanded to maintain the original shape, the Molsander sands most Ogee Moulding, Crown Moulding, Nosing Shapes, and other unusual mouldings. In addition, it does an exceptionally fine job on Bed Rails, Drawer Sides and many types of **Drawer Fronts.** Only one pass of the Molsander is required to do a superior job on many mouldings.

### Detail view of feed mechanism

The Molsander will handle work as wide as 8" or as high as 8" and any usual length. Rates of feed are variable and range from 20 to 55 FPM with special feed ranges available.

Moulding surface is protected by sectional rubber-tired upper and lower power driven feed rolls. To assure constant feeding, the Molsander is equipped with a power driven, rubber covered endless feed belt. 5 feet long.





### Detail view of sanding form mounted on carriage. Single head model.

The sanding form carriage is full-floating and spring-cushioned. The form holder is mounted by means of a patented tow-type linkage, stabilized to prevent chatter. The carriage has mechanisms for quick adjustments in all directions. Air operated lifting device for form carriage is available as extra equipment.

Call or write for full information today. Name of Molsander agent in your locality supplied on request.

### Molsander equipped with two heads

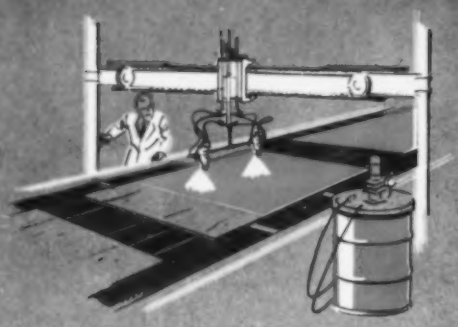
The Molsander can be equipped with either one or two heads. Additional heads eliminate extra passes and provide greater variety of sandings. For sanding of delicate work, a two-speed sand belt motor with push button control is available.

Electrical equipment includes 2 electric motors, magnetic starters and push button controls wired completely within the machine. Frame and base is sturdy steel weldment.

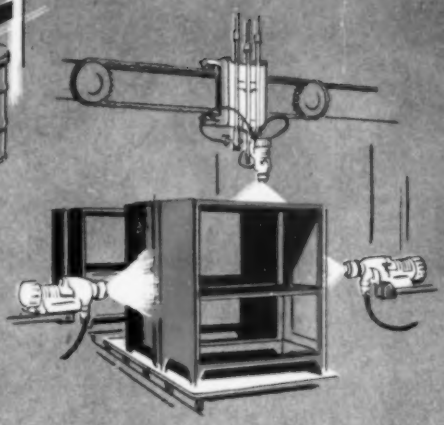
MANUFACTURED BY

**THE BOULIGNY COMPANY**

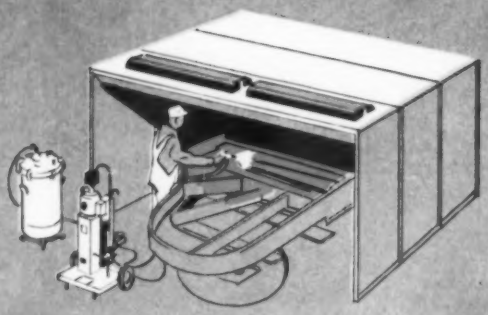
P. O. Box 10158 • Charlotte, N. C.



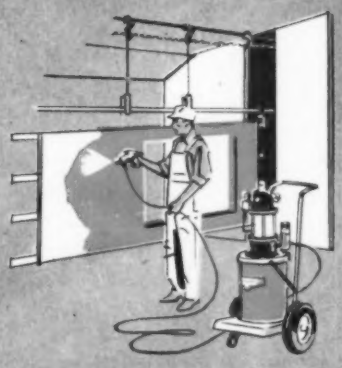
Automatic panel finishing



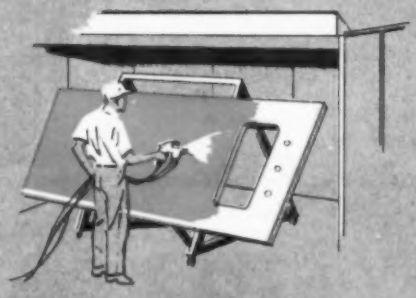
Automatic cabinet finishing



Hot-spray lacquer finishing of fine furniture

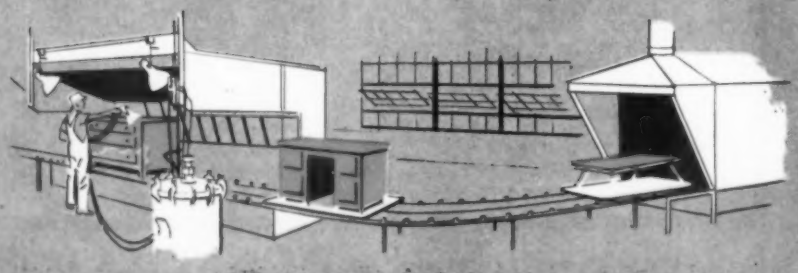


Airless painting of prefabricated sections



Spray-application of catalyst materials

Fast, efficient plant maintenance painting



Complete systems for finishing, drying

FOR BETTER SERVICE, BUY

**DE VILBISS**

**THE DE VILBISS COMPANY**

TOLEDO 1, OHIO

Barrie, Ontario • London, England
São Paulo, Brazil

*Branch Offices in Principal Cities*

# MANAGEMENT OBJECTIVE:

## Determine best method and equipment for surface preparation and coating

## ACTION: Contact DeVilbiss

**HERE'S WHY:** With the industry's most complete line of surface-preparation and coating and finishing equipment to draw on, DeVilbiss can supply you with matched components that complement one another to form a smooth-functioning system tailored to your requirements. DeVilbiss is the one "single source" fully qualified to analyze your needs, then let you select the best, most economical product combination to fit your job. Engineering and service facilities are available coast to coast. Just contact our nearest branch office, or write us direct.

of hardboard that ranks with tops in much higher-priced pieces."

Panels are first put through a roller coater which applies a pearl-gray (or other tone) base coat. They are racked and dried for a 30-minute period. Next, the panels go through a roller-graining machine and then immediately through a second roller coater which applies the seal coat. After a 25-minute drying period, the panels are ready to go to assembly. Edges are grained on the printing machine (hold-down bar is raised for this hand-held operation).

After the assembled cases come from the drying oven, they are conveyed directly to the rubbing line. As the first step for the tops, they are coated with rubbing lubricant and sanded with a portable power sander using 400-A paper. Next, steel wool is used for the perimeter of the top (as the power sander could damage the edges). Then, rubbing compound is applied and the top is buffed with a flexible-shaft buffer. Finally, the top is polished with a revolving, powered polisher.

*(Manufacturers)*

**(966) Roller coaters .....Dubuis Machine Co.**
**(977) Roller graining machines ..Schmutz Mfg. Co., Inc.**
**(978) Finishes .....Robertson Co.; Reliance Varnish Co., Inc.**
**(979) Rubbing lubricant, compound ..S. C. Johnson & Son, Inc.**

**AUTOMATIC FINISHING of panels is accomplished in one continuous pass through 90 ft. conveyorized system employing roller coaters, sander and drying oven**

## 90 ft. Conveyorized System Speeds Panel Finishing

A 90 FT.-LONG conveyorized finishing system employing a 10-step operation has speeded the finishing of plywood panels 33% at an Indiana trailer manufacturing plant.

The finishing process begins when panels are fed into a brush roll machine to remove surface dust or foreign materials. Immediately following the brushing operation the sheet enters a roller coater to be coated on both top and bottom surfaces with a lacquer sealer type material. From the coating operation, the panel moves on a drying conveyor to a top surface sander employing revolving flap wheels to sand and smooth the top surface and brush it in preparation for another coat of sealer. This coat is applied by a second roller coater.

Following the second coating application, the panel moves on a conveyor through a 20 ft. infrared oven providing controlled temperatures that can be set to any desired level by merely turning the knob. As the panel moves out of the oven area it enters into an elevating tower to cool out during an approximate seven-minute travel cycle prior to being stacked automatically at the rate of three per minute for removal to succeeding operations.

*(Manufacturers)*

**(962) Finishing line roller coaters, sander, brush units, conveyors, cooling tower, related equipment .....Union Tool Corp.**
**(963) Infrared drying oven ..Dry Clime Lamp Corp.**

**TRAVELING SPRAY NOZZLES apply vinyl acetate emulsion based finish as shakes are fed through line at Shakertown Corp.**

## New Emulsion Coating Cures Shake Finishing Headaches

APPLICATION OF A VINYL acetate emulsion polymer coating on Shakertown Corp.'s cedar shakes or shingles has solved many headaches for the 39-year-old Cleveland, Ohio, company. Despite constant efforts to improve the finishing methods formerly used, conventional coatings presented problems in tint retention and premature film failure on exposure. They also indirectly caused additional problems in plant fire hazard, difficulty in cleaning application equipment, and incomplete cure on production line which resulted in packaging snags.

Today, shakes are put through a raking or striating operation, trimmed and sorted at the company's plants in Winlock and Chehalis, Wash. Sidewall units are fabricated by electronically bonding the shakes to an insulating type backerboard and/or veneer. These fabricated 4 x 8 ft. long sidewall shake panels are then conveyed to the coating line which has been adapted to emulsion systems through the use of an automatic, rapidly oscillating, airless, hot spray apparatus. After the coating has been applied, panels are dried in an infrared oven and packaged automatically. Total elapsed time from coating application to packaging is approximately four minutes.

*(Manufacturers)*

**(964) Finish base ...Reichhold Chemicals, Inc.**
**(965) Airless spray system .....Nordson Corp.**

**DOOR AND PANEL finishing line, 200 ft. long, 52 in. wide, turns out doors sanded, finished both sides and dried in two continuous 15-minute passes**

## Curtain Coating Line Sands, Seals, Finishes

A NEW CURTAIN COATING LINE sands, seals and finishes kitchen cabinet doors and flat panels in a 30-minute cycle at H. J. Scheirich Co., Louisville, Ky.

The line basically consists of two wide belt sanders, two curtain coaters and ovens – all linked together in a straight-line setup with conveyors. Each door goes through the line twice (once for each surface) in two continuous 15-minute passes. Doors emerge finished, dried and ready to go right into assembly. Previous methods necessitated storing doors on racks for drying overnight.

"Until we installed the conveyorized line for finishing cabinet doors and flat panels, this was a slow point in our operation," says Louis E. Himelreich, plant engineer. "There were times when the door finishing line had to work Sundays to keep up with production in the rest of our plant."

A main feature of the door-panel line is that it will handle panels of various thicknesses without adjusting machines. While there was no problem in this connection for the flow coating machines and oven, a special feeding mechanism had to be worked out for the wide belt sanders.

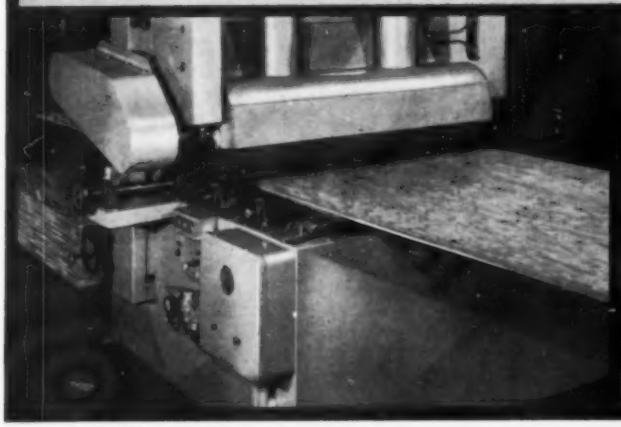
*(Manufacturers)*

**(938) Pressure curtain coaters ..Wilco Machine Works**
**(939) Sanders .....Timesavers, Inc.**
**(940) Door-panel line ovens .....M & E Co.**
**(941) Edge finish spray booth .....M & E Co.**
**(942) Oven heaters .....Buffalo Forge Co.**
**(943) Turn belts .....Smith Bros.**
**(944) Finishing materials ..Reliance Varnish Co.**

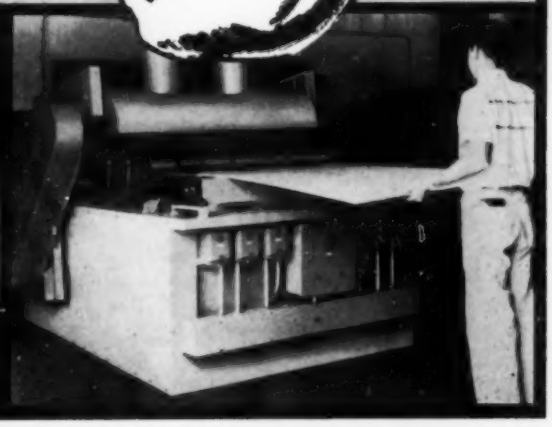
*Continued on Page 70*

# "The MERIT FLEX-DRUM SANDER *is one of the best investments we have ever made"*

*says* FRANK MARSHALL, *Gen. Mgr.*
PLYWOOD FINISHING CORP., *Brooklyn, N. Y.*



*Sanding pre-finished plywood panels with the Flex-Drum Sander*



*Flex-Drum Sander can be fed manually or automatically*

"We have a 50-inch Flex Drum Sander using #240 aluminum-oxide grit," he writes. "It has been used 8 hours a day ever since its installation in September 1958. Several million feet have passed through this sander unattended and without a single breakdown. *The original load of sandpaper is still in the unit.*

"It is used for sanding sealer and for burnishing lacquer topcoats on 4 x 8 foot plywood panels. We were the first to use this unit in our industry, and I feel that it was one of the best investments we have made, and we are considering purchasing another."

Plywood Finishing Corporation has taken the lead in the highly specialized pre-finished plywood industry. They have done it by automating their plant with the finest equipment and by eliminating hand methods. The Merit Flex-Drum Sander is an important part of this automated process and helps maintain high quality standards. Let us tell you how the Merit Flex-Drum Sander can be one of the best investments you can make, too. Write for Bulletin 79.

**MERIT** *Products Inc.* 3691 LENAWEE AVE., LOS ANGELES 16, CALIFORNIA

*Manufacturers of SAND-O-FLEX and GRIND-O-FLEX abrasive tools*

**AUTOMATIC, CONVEYORIZED** spraying setup now finishes 900 guitars per hour compared to 150 per hour with former hand spraying method

## Specialized Finishing Setup Boosts Guitar Production

A NEW WIDE BELT SANDER and an automatic, conveyorized spraying setup have saved many man-hours of labor and freed experienced workers for other duties at Harmony Co., Chicago, manufacturers of guitars and other fretted instruments.

Use of the wide belt sander with conveyorized bed now does in two hours what formerly took up to three days to perform. Surface veneer fed into the machine may be cut down as little as 1/64 in. or as much as 1/10 in.

The new finishing setup applies finish to 900 guitars per hour where a worker formerly could hand spray only 150 pieces per hour. Since the surfaces of the fretted instruments are curved, a special method had to be devised to apply an even coat. The answer was a setup which utilizes automatic spray heads in two separate booths. In the first, one side and the front of the guitar are sprayed; in the second, the other side and back are coated. There are two sets of spray heads in each booth, so four guitars are actually sprayed at one time.

*(Manufacturers)*

**(936) Sander** ..... **Timesavers, Inc.**
**(937) Spray guns, booths, conveyors** ... **Pauscha Airbrush Co.**

**CABINETS AND DRAWERS** receive primer coat in booth equipped with airless spray unit, then are conveyed through drying oven to packaging line

## Markets Cabinet Fronts In Seven Finishes

AN UNUSUAL MARKETING idea for kitchen cabinets has been developed by Curtis Companies, Inc., Sioux City, Ia., for their new hardboard-chassis kitchen cabinets. The idea involves shipping cabinet chassis in their own packages, and prefinished doors in separate packages with all necessary hardware and instruction sheets.

The unique feature is that fronts are available in seven different finishes, and any front can be used on the single basic cabinet chassis. Thus, with only one set of cabinets in stock, the retailer with a supply of fronts can give a customer immediate delivery on any of seven finishes in kitchen cabinets.

Finish used is a new-type dye available in seven colors, none of which masks the birch wood grain.

*(Manufacturers)*

**(948) Airless spray system** ..... **Nordson Co.**
**(949) Spray booth, equipment** .... **DeVilbiss Co.**
**(950) Finishes** ..... **Paint Div., Pittsburgh Plate Glass Co.**
**(951) Dye finish** ..... **Wolverine Finishes Corp.**

## Lacquer Formulation Ends Vinyl Plastic Migration

STANLEY FURNITURE CO., Stanleytown, Va., can produce its popular Danish modern chairs at a rate of five per minute. Yet, a finishing problem encountered in early 1958, very quickly halted conveyors and hung up spray guns.

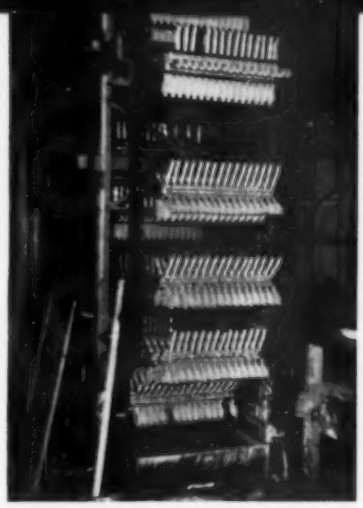
A finish for tables and chairs gave perfect satisfaction on the table line, but, where polyurethane foam cushions were used on the chairs, the finish showed "lifting" and "peeling." A careful test was made on the finish which seemed to indicate that the condition was caused by the polyurethane cushions, covered in either fabric or vinyl plastic. A trace amount of chemical catalyst used in the production of the foam cushions was migrating through the upholstery material and onto the lacquered furniture surface. The amount of catalyst migration was so small it defied detection by ordinary methods, yet it was sufficient to soften the lacquer.

It was decided that the best immediate solution to the problem would be a topcoat film that was resistant to the action of the catalyst. A lacquer formulation based on a tough and durable film-former, half-second butyrate, and resistant to many types of stains, including rubber stains from telephone bases and other objects, was the answer.

The furniture line, "Nordika Kollektion," is available in three finishes—American, oiled walnut or black lacquer.

*(Manufacturers)*

**(960) Butyrate film-former** .. **Eastman Chemical Products, Inc.**
**(961) Varnish** ..... **Reliance Varnish Co.**



**CONVEYORIZED DIPPING** machine transports racks of wood toy parts through lacquer vats at rate of 2,000 per hour

## Dipping Machine Speeds Toy Finishing

A CONVEYORIZED DIPPING machine is one of many reasons why Stombeck-Becker Mfg. Co., Moline, Ill., produces highly-quality wood toys at a rate fast enough to meet sharp competition.

The ingenious dipping machine transports racks of wood blocks through lacquer vats located at the bottom. Rate of finishing is 2,000 units per hour.

*(Manufacturer)*

**(926) Paint dipper, paint** ..... **Don-Ite Co.**

## Uses Epoxy Resin for Lab Furniture Finish

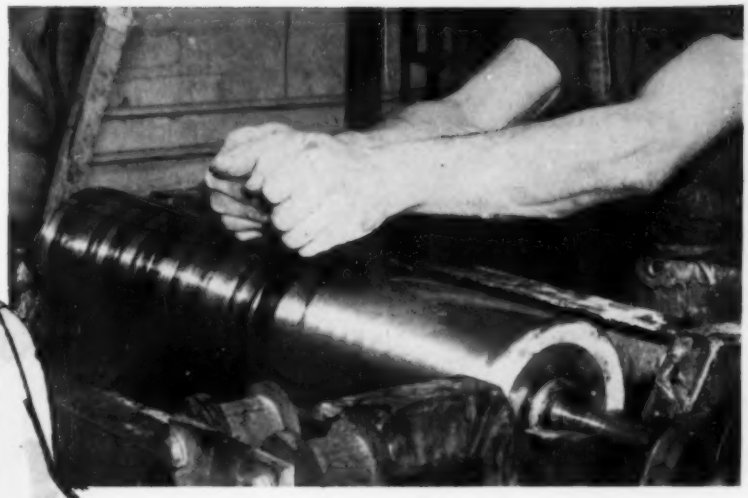
DOANE & WILLAMS, manufacturers of fine store fixtures in Holyoke, Mass., use a variety of finishes—including a new epoxy resin finish—to satisfy a demand for custom built pieces that must be attractive, and at times more durable than household furniture.

Recently the firm has been making successful applications of an epoxy resin finish for use on furniture for chemical laboratories where maximum resistance to chemical reaction and stains are of prime necessity. Slower drying than lacquer, the finish coat must nonetheless be applied within three days for once it is set, there is no possibility of scuffing or sanding. Even a slight amount left in a can over night, tightly sealed, will turn to a rubbery substance which no amount of regular paint thinner can dissolve.

Furnished in clear or white, it may be applied one hour after sealing and scuffing. To each gallon of epoxy resin is added 10 liquid ounces of a catalyst thinner. Mixing of these two ingredients causes the solution to boil. It must then be allowed to stand for one hour.

*(Manufacturer)*

**(916) Epoxy resin finish** .. **David E. Long Corp.**



# SUPERB WOOD-GRAIN GRAVURE CYLINDERS

*plus*

## Expert Engineering Service to assure true reproduction

American-Marietta Gravure Company alone gives you an important *extra service* to assure rich, natural wood-grain reproduction:

1. A-M provides the finest wood-grain gravure cylinders master craftsmen can produce.
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These gravure cylinders, available in one or multiple colors, will faithfully reproduce every delicate detail of wood grain—on furniture, cabinets, metal, wall board, composition board, plastics. *Write us your requirements.*

### Extensive Library of Wood-Grain Designs

- Big library of engraved wood-grain and special-design cylinders available—many new patterns.
- Cylinders for single print, double and triple print in register.
- Fast, skillful repair and rechroming.
- Complete line of printing and finishing materials for any surface or substrate.

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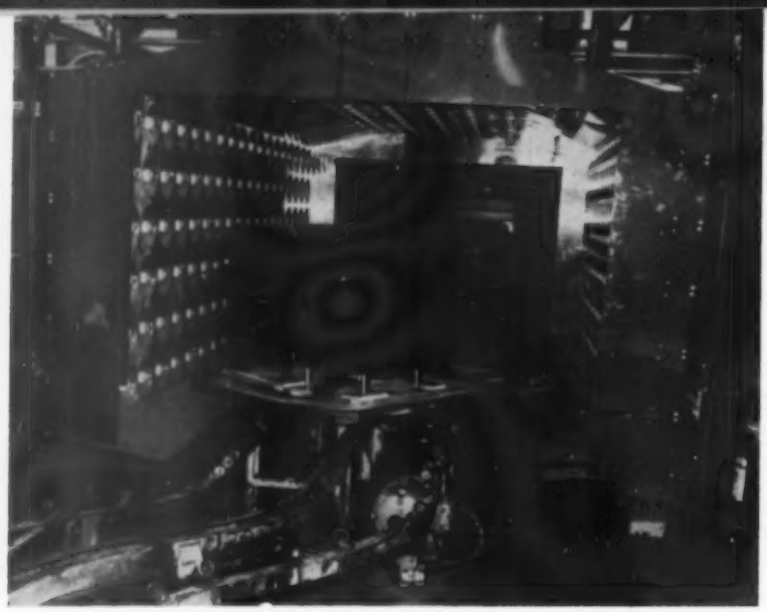
**AMERICAN-MARIETTA GRAVURE COMPANY**

**DIVISION OF AMERICAN-MARIETTA COMPANY**

**Central Sales Office, Kankakee, Ill.**

Other Sales Offices: Marietta Paint & Color Division, High Point, N.C. Arco Division, Cleveland, O.; Charles R. Long Division, Louisville, Ky.



PALLET REVOLVING CONVEYOR devised by Kroehler Mfg. Co., Louisville, Ky. for infrared drying oven may speed operations by 80%. Special chain setup causes pallet carrying case through oven to revolve completely eight times per minute; this exposes all lacquered surfaces of piece equally to walls and ceiling of infrared units

## Conveyor Experts Predict:

# 80% Less Drying Time on New Conveyor; More Stacking Units

**By G. TREDWELL**
**George Koch Sons, Inc.**

WE HAVE MANUFACTURED a patented conveyor for a number of years and have, over the past ten or twelve years, installed about 250 complete conveyor systems. The basic structure of this conveyor has not changed substantially; however, process requirements to some extent have required that the conveyor be broadened in concept to offer many features not originally considered mechanically practical. It would be very difficult to itemize these, however, they generally fall under the category of increased flexibility and the ability to better handle and accommodate a greater variety of process requirements.

This introduction of the pressure curtain coater has been a significant step forward in coating flat or near flat work. It enables more accurate film control; enables coating of parts which hitherto could not be coated by conventional roller coating methods; coats at speeds previously considered impractical (from 60 ft. to 600 ft. per minute); and will handle some materials which previously were considered difficult, if not impossible, for automatic equipment. The high speed production characteristics of the pressure curtain machine have required the application of new conveyorization and drying techniques.

Probably for the first time, stacking conveyors and wicket conveyors have been applied to wood finishing as a space saving technique. Whereas there are very few of these installations existing now. I believe that the next two or three years will see the design and installation of a great many such wood finishing techniques. The pressure curtain machine is particularly applicable to the "board" industry.

**By WILLIAM H. MARONEY**
**Automation Equipment Co.**

THERE EXISTS in the "wood finishing industry" two separate problem areas for facilitating the material handling, as well as the finishing process. The first area is in furniture finishing particularly as related to case goods, and in general, for the finishing of wood products which vary in size and color.

There are, of course, many plants which finish identical objects on a conveyor for many days, and perhaps weeks, before changing to a different size and color object. However, there are also many furniture manufacturers who find it necessary to finish their products in many sizes and colors during a single day's production. These people have a problem in material handling because of the variations in time required to complete the same operation on different size products. In a fully powered material handling system this can only be compensated for by timing the conveyor to the longest operation.

Recently, Automation Equipment Company developed a pallet indexing machine which provides an automatic "banking system" whenever necessary in the complete finishing system. Briefly the indexor makes it possible for one operator in the system to finish four or five, or even more pieces, while another operator on the same finishing line is working on one large time consuming piece.

This provides an important addition to any conveyor system developed for the furniture manufacturer.

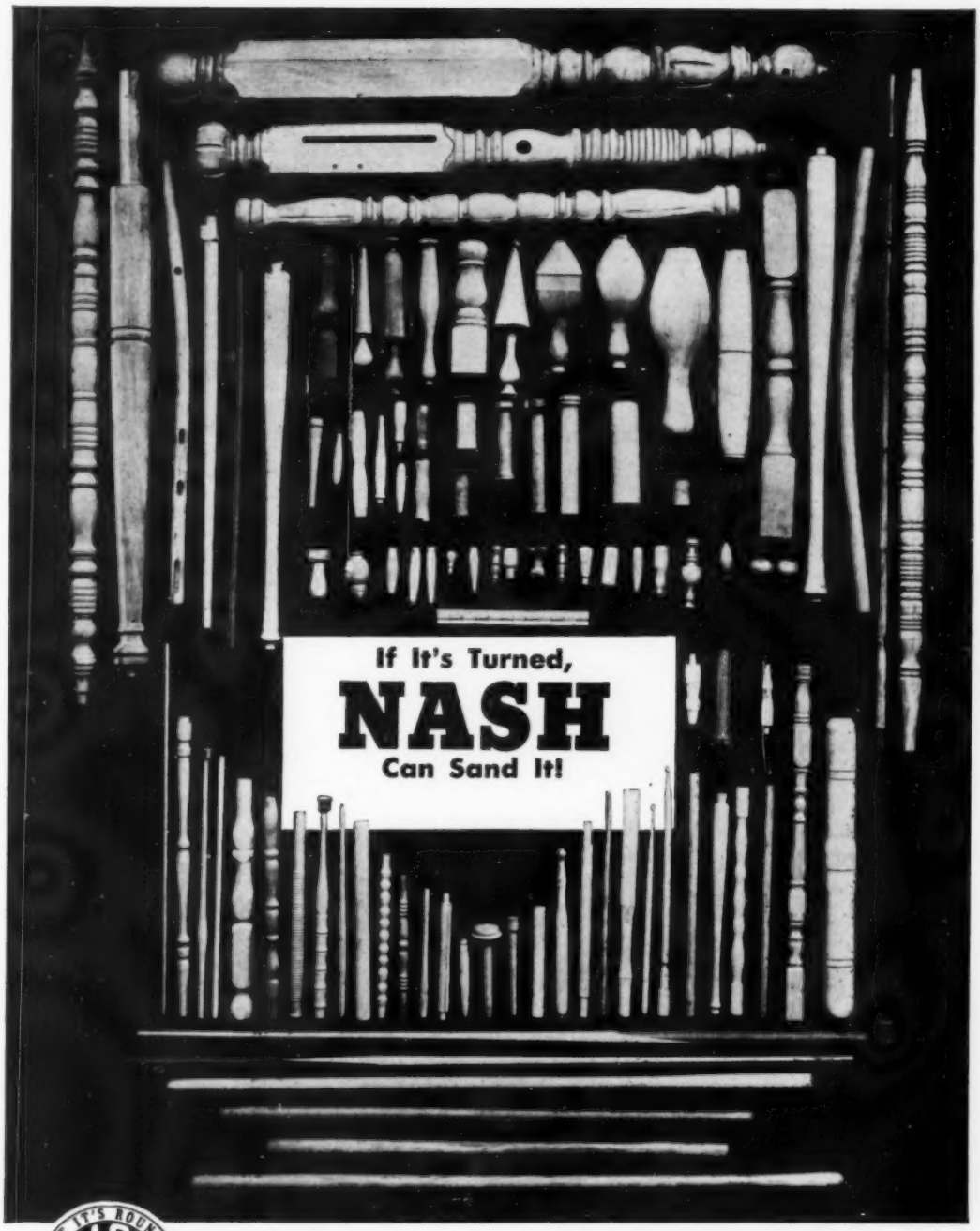
In the other area of wood finishing of uniform objects and colors much time is lost by oven drying operations. Engineers for many years have attempted to use infra-red equipment to speed up this drying, and have indeed been successful in this respect on flat panel stock, but, until very recently, they have made no significant progress in drying case goods.

However, more recently one outstanding furniture manufacturer developed a system (see photo) to rapidly dry case goods using infra-red heat and they were able to do so by rotating the pallet. At the present time we are completing the engineering of a simple rotating device which may also be used in the same system with our indexing equipment. By using a rotating pallet and infra-red it is possible to reduce the drying time on a conveyor as much as 80%.

It is my opinion that there will be significant advances in the use of infra-red, necessitating special conveyor equipment particularly for large case goods manufacturers.

In addition, I think there will be an expanded use of abrasives for "on the line" sanding operations.

In this respect I think there will be an increased amount of KD furniture and case goods manufactured, the parts of which will be prefinished before assembly. This type of an operation lends itself well to slat conveyor type of installation for both automatic finishing by roll or flow coating and automatic sanding. Infra-red drying, of course, has proven itself for this application.




IF IT'S ROUND NASH CAN SAND IT

**J. M. NASH** *Company, Inc.*

2360 North 30th Street
Milwaukee 10, Wisconsin

**SPECIAL FINISHING MACHINES SINCE 1890**

# Here's What Modern Face Veneer Plant Offers You

By R. K. STEM

President,

Chester B. Stem, Inc.

HERE'S WHAT the modern face veneer plant offers you.

There are more veneer species being cut today than any time for the last 20 years. This is a distinct advantage for the designer of various wood products. He can express his own individual designing personality, and this has encouraged a wider use of wood products in general because of the very fact they are not so limited and so "look alike."

There is also a remarkably greater availability of grain patterns than at any time in the last 20 years. We have in the last several years been free from the shackles of the straight line in modern design. Now, face veneer showing interesting active grain movement is required. It is recognized among designers that these grain patterns are necessary to relieve the sometimes severe modern lines.

One might think that grain patterns cannot be controlled and that they exist in the tree and there is nothing a veneer manufacturer can do about it. To the contrary, grain patterns can be very remarkably controlled by the manner of shaping the flitches in the sawmill prior to sending them to the slicing machine.

There has also been a major increase in the use of veneers for products other than cabinetry. The greatest evolution perhaps is in the wall paneling termed "prefinished." The prefinished panel seems to be synonymous with the grooved panel which gives the impression of planking or solid lumber effect. This means that the veneer on the panel is not sequence matched but rather is deliberately mismatched to give the random appearance. This has required a new approach for the manufacturers of veneer and for our customers, the plywood manufacturers. With this increased footage requirement for clear eight foot lengths, we have changed our logging philosophies and our control throughout the plant to accommodate this particular new phase.

An interesting growth has been the increased use of veneers for what we might term industrial uses and various uses of the curved panels. Frequently this means special thickness veneer.

Our modern veneer machines are equipped with hydraulic dogs (clamps) which enable us to quickly change from flitch to flitch. Previously this was done with screws and required a good deal of time in changing between flitches.

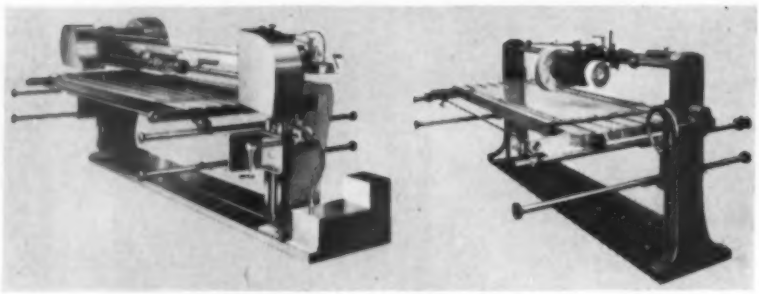
Our machines run much faster. The strokes per minute have at least doubled. These faster facilities have enabled us to take special orders and to cut to special thicknesses at economical prices. Previously, special work was so expensive as to often be prohibitive.

Here are some other notable improvements in modern veneer mills which have in turn benefited veneer buyers:

Our veneer knives today receive a very high polish, rated at "four to five micro inch." By having this high polish on the back of the knife, the edge stands up longer. So even though we cut more feet per day, the knife stays sharper.

*HERE'S WHY:*

**For Sanding and Buffing you can't beat BURKLE!**



FOR WET AND DRY SANDING, Model BSL, a sturdy, vibration-free machine that is indispensable. Designed for easy operation, lasting economy.

FOR BUFFING AT ITS BEST, a ruggedly built, easily operated machine for achieving mirror-like finishes with efficient speed and desired economy.

Years of experience in designing, building and operating reach their peak in these superb machines by Burkle. Each has been built with precision and represents the finest of its class.

Before you reach your next buying decision, you'll want the complete facts on these units. We can also furnish you money-saving information on machines for applying lacquers, varnishes, matting material, primer, filler and the like. Write, wire or call us, today.

**JOYCE RESEARCH AND DEVELOPMENT CORP.**

42-42 11th Street, Long Island City 1, N. Y.
TEL: STillwell 6-3841

BOSTON 31, MASS. WINSTON-SALEM, N. C. INDIANAPOLIS 20, IND.
ROCHESTER 9, N. Y. LONG BEACH, CAL.

CANADIAN DISTRIBUTORS: Preston Woodworking Machine Co., Ltd., Preston, Ontario

Check with Joyce for machines that will solve problems in these operations:

☐ Mill Room ☐ Machine Room ☐ Glue Room

☐ Finishing ☐ Sanding ☐ Parquet Assembly

Our wood is smoother cut for two additional reasons, both pertaining to cooking of the flitches in the vats. Now we have thermostatic valves so that we follow an exact schedule on our cooking. Of course, hand and glove with this is the fact that we also have a uniform steam source from our boilers due to automatic controls.

Previously we simply had hand controlled valves on the vats and a very irregular source of steam from the boilers which were hand fired. This meant that in the case of walnut, the color of the wood was variable and in the case of all veneers, sometimes the wood was rough because it was not cooked sufficiently. Sometimes it was fuzzy because it had been cooked too long or had been cut at too high a temperature.

Much the same thing applies to the drying. The veneer now is much more uniformly dry. The moisture content is much more uniform. It is almost unheard of today for customers to complain of wet veneer.

This is due to the same facts as above. We have thermostatic controlled heat in our veneer dryers. We have compartmented dryers so that we have a lower temperature at the introductory end and a higher temperature as it comes from dryer at the output end, and we have the same uniform source of heat from the boilers.

Compared to this, our dryer men used to be frantic trying to maintain uniform moisture when they were doing everything they could at their end only to find that the steam pressure had suddenly dropped. Or they might find that through some introduction of veneer that was too cold, the heat in the dryer had suddenly been chilled. With thermostatic controls and uniform steam this cannot occur.

### Lighter Veneer Crate

Our own firm recently developed a crate that, including the veneer in its contents, is 20% lighter than the old style veneer crate. At the same time the crates are tougher, stiffer, and they more completely protect the veneer on the side or edges. This crate is stiffer because it is bowed slightly when the steel straps are applied electrically and by being held in this slight arch, the veneer crate cannot bend lengthwise.

The facilities for handling veneer samples in the mill are so infinitely improved that we can process samples representing several carloads and have them on their way to our customers in a matter of a very few hours.

We have developed a virtually foolproof method of checking our shipments. We have a perforated tag that remains on the crate of veneer until it is actually placed in the car or truck, and only then, is it removed. All of the perforated cards are then checked against the shipping order before invoicing as positive evidence that they have been included.

Reaching as far back as 1951, the average price in the industry for all face veneers has remained stable and actually slightly declined. This is strong testimony supporting the evidence of the veneer industry's improvement in production methods and the reduction in costs thereby for veneer buyers.

**WHERE TO BUY IT?**

**Are you in the market for a new finish? A new spray booth? Roller coater? Grain printer? Entire new conveyorized finishing system?**

**If you are looking for these or any of hundreds of other items connected with modern wood finishing, be sure to carefully check the listings in the WOOD FINISHING BUYERS' GUIDE in this issue. The Guide, which starts on page 96, gives product listings from more than 150 manufacturers.**

SCHOOL FURNITURE ■ STORE FIXTURES ■ SPORTING GOODS ■ OFFICE FURNITURE ■ BOATS ■ MOBILE HOMES ■ WOODEN TOYS ■ KITCHEN CABINETS ■ PRE-FAB HOMES ■ PARTICLE BOARD ■ CHILDREN'S FURNITURE ■ GAMES ■ BEVERAGE CASES ■ PLYWOOD ■ WALL PANELING ■ STORE DISPLAYS ■ FLOORING ■ HARD BOARDS ■ OUTDOOR FURNITURE ■ TOILET SEATS ■ CHIPBOARDS ■ INSTITUTIONAL FURNITURE ■ VENEERS ■ WOODEN TOYS

SCANLAC®

WOODEN TOYS ■ VENEERS ■ INSTITUTIONAL FURNITURE ■ CHIPBOARDS ■ TOILET SEATS ■ OUTDOOR FURNITURE ■ HARD BOARDS ■ FLOORING ■ STORE DISPLAYS ■ WALL PANELING ■ PLYWOOD ■ BEVERAGE CASES ■ GAMES ■ CHILDREN'S FURNITURE ■ PARTICLE BOARD ■ PRE-FAB HOMES ■ KITCHEN CABINETS ■ WOODEN TOYS ■ MOBILE HOMES ■ BOATS ■ OFFICE FURNITURE ■ SPORTING GOODS ■ STORE FIXTURES ■ SCHOOL FURNITURE ■ GAMES

At last a tougher, more resistant wood finish for just about anything that must withstand rough treatment. New Scanlac resists scratches, discoloration and staining from many chemicals, detergents, alcohol, etc. . . . shows excellent color retention and high build of finish. Proved superior to conventional lacquers by laboratory tests. Conventional warm or cold spray techniques are ideal for this water white, clear, high-solids lacquer. No matter what you make . . . if it's wood and takes a beating, try a test run of Scanlac. Write for details.

THE GILBERT SPRUANCE CO. ■ PHILADELPHIA 34, PA. ■ WINSTON-SALEM, N. C.

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## Engineered Systems

## FLOW COAT MACHINES

Flow coat machines are making history in the metal finishing field with their labor-free, low-cost operation.

Flow coating can be a money maker for wood fabricators, too.

***Write for a copy of our booklet, "What Is Flow Coating?"***

Contact Spra-Con and let us help you work out your finishing problems.

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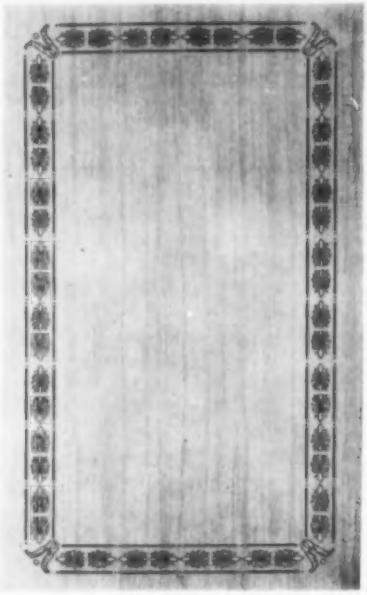


**NEW TRENDS** in plastic laminates use include (right) chair by Shadowcraft, Inc., which utilizes Reiss Associates, Inc. wood grain pattern laminate on the frame and legs. New process, called serigraphy, enables printing of design in with the wood grain in table top (left). Table top laminate is made by Pioneer Plastics Corp.

# Better Wood Grain Patterns Seen for Plastic Laminates


**By R. J. SULLIVAN, Jr.**

**Farley & Loetscher Mfg. Co.**
**Plastics Div.**
**Dubuque, Iowa**


WE BELIEVE THAT the most significant single development in plastic laminates in the past year or so is the development of three and four color printings to match woodgrains. The three and four color process printing at one time was considered a stumbling block in laminated plastics, however, today we are able to secure three and four color printings that match very closely current veneers that are readily available and those veneers that are in the exotic import field.

This development in printing has widened considerably applications of laminated plastics to higher furniture groupings not previously included in the laminated plastics field. Also the faithfulness to woodgrains in reproductions has made laminated plastics more acceptable to the consumer trade for use in the home and institutions as well.

We believe the next significant progress will be made by the resin manufacturers who will develop resins that can be applied to high pressure laminated plastics that will allow greater use for exterior applications. This then will open up a wide field of vertical applications of high pressure laminated plastics to exteriors in the form of wall paneling, doors in both the residential building field and commercial or institutional field.


**By K. V. SWONSEN**

**St. Regis Paper Co.**
**Panelyte Div.**
**Kalamazoo, Mich.**


IN MY OPINION, the most significant development in our product has been our industry's ability to reproduce in better detail woodgrains such as walnuts, teaks, mahoganies, etc. Closely paralleling this refinement in reproduction has been our industry's ability to reproduce the many beautiful finishes.

To prophesy on progress in any industry is a difficult one. I feel, frankly, the most significant progress our industry will make in the next one to five years will be the even deeper penetration into all types of furniture, as opposed to the so-called modern-medium price which is our prevailing market today.

Because of the nature of our product, certain special effects can be obtained, such as silk screen, special inlays, the use of metallics, and our ability to postform. All these things will allow us to blanket the furniture industry.

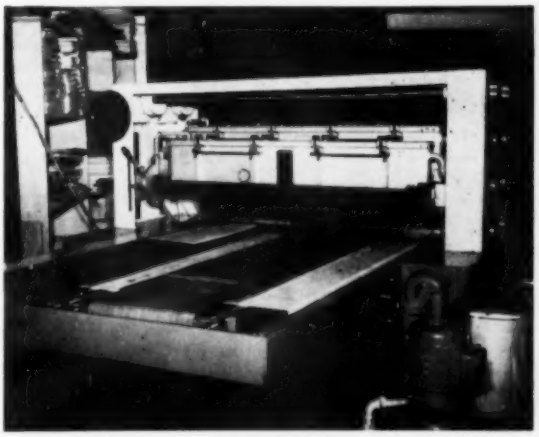
Coatings for a prefinishing line are evaluated on pressure curtain coater in the laboratories of Lilly Varnish Company.

# Prefinishing Points to Dynamic Growth for Plywood, Hardboard, Particle Board

Prefinished plywood, particle board, hardboard and K.D. articles are creating new markets each day for their producers. Established companies are installing finishing equipment to meet competition, or to create new markets for their products. Lilly laboratories use small-scale setups of production devices such as the Steinemann Coater pictured here to evaluate formulas and to prepare finished samples for customers.

Whether you plan to finish by roller coater, pressure curtain coater, automatic spray, knife coater or another method, we welcome the opportunity to use our technical experience to assure you the maximum success with your prefinishing operation. The Lilly products you purchase will be proved by laboratory test and field experience.

*We invite you to visit our well-equipped laboratories—or a Lilly Finishing Specialist will be glad to work with you to help you produce better finished products economically and efficiently.*



The Lilly Plants manufacture products for industrial finishing production lines exclusively.

**LILLY VARNISH COMPANY** INDIANAPOLIS 7, INDIANA

*Affiliated Plants*

*Lilly Varnish of Massachusetts, Gardner, Mass.*
*The Lilly Company, High Point, N. Carolina*
*Productos Aurolin, S.A., Mexico City*

# Safety Check List for Wood Finishing

**Are your dangerous finishing operations really safe? Use this list to compare your operation with an expert's recommendations**

By ROBERT CURRIE

Wood Products Section, National Safety Council

**(1) Is the spray paint booth located above grade but not on the upper floors?**

The spray paint booth should be above grade because solvent vapors are heavier than air and would accumulate at the low point. Upper floor locations are not desirable as such areas are not easily accessible to outside hose lines and because of the possibility of water damage below.

**(2) Are booths safely removed from any spark or flame producing operations?**

Such sources of ignition should be removed to eliminate a fire and explosion hazard.

**(3) Is the area immediately outside the booth protected with sprinklers?**

The area should be sprinklered for the protection of the servicing operations conducted outside the booth, and also to envelop the booth and ducts in a fine cooling water spray in the event a fire is not controlled within the booth.

**(4) Are there sprinklers within the booth, within the eliminator chambers and within the exhaust ducts and stacks?**

Sprinklers should be provided in these locations since an exposure to spontaneous combustion is a serious hazard and generally cannot be extinguished more effectively by other means.

**(5) Are sprinklers in booths and stacks kept clean?**

Sprinklers in booths and stacks must be ready to operate to extinguish a fire and therefore must be kept clean. The best method of doing this is to put a coating of oil, such as engine oil, on them which can easily be wiped off.

**(6) Are booths cleaned frequently enough to prevent accumulation of residue?**

The intensity of the hazard of a booth varies in proportion to the accumulation of residue. A clean booth has a minimum of fuel for a fire, but a heavily loaded booth can burn for a considerable period of time. Cleaning should be done frequently, daily, or more often if necessary, using non-sparking tools.

**(7) Is the average air velocity over the open face of the booth more than 100 linear f.p.m.?**

This air movement should prevent vapors and particles from escaping from the booth and protect the operator from inhaling the vapors. There should be a complete change of air every two to four minutes. In some cases, an air velocity of 50 to 60 l.f.p.m. is sufficient, while in others it is necessary to maintain a velocity of more than 200 f.p.m. This requirement is variable based on the design of the booth.

**(8) Are there maintenance procedures established to assure replacing filter pads before excessive restriction to air flow occurs?**

Restricted air flow renders the booth inefficient and therefore will not exhaust vapors and particles from the booth properly.

**(9) Is the spray finishing employees' clothing kept in metal lockers overnight or removed from the premises?**

Such clothing is subject to spontaneous combustion and therefore should be stored in metal lockers or removed from the premises.

**(10) Are approved metal waste cans provided wherever rags or waste are impregnated with finishing materials?**

All such rags or waste should be deposited in approved metal waste cans immediately after use. The contents of the waste can should be properly disposed of at least daily.

**(11) Are spray booths and exhaust ducts cleaned when changes in spray material are made?**

Booths should not alternately be used for lacquers, and then other materials such as varnish, stains, ground coats, etc., unless all traces of the finishing material formerly used have been removed from the booth and exhaust duct.

**(12) Are both containers grounded when flammable liquids are transferred from one container to another?**

Whenever flammable liquids are transferred from one container to another, both containers should be grounded to prevent discharge sparks of static electricity.

**(13) Are quantities of flammable liquids in the vicinity of the booth kept at a minimum?**

The quantity of flammable liquids kept in the vicinity of spraying operations should be the minimum required for the operation and should not exceed a supply for one day or one shift. Bulk storage of portable containers of flammable liquids should be in another building or cut off by standard methods.

**(14) Is the "no smoking" rule rigidly enforced?**

Flammable vapors may be present in the area. Therefore, all sources of ignition such as smoking, open flames, heating or welding apparatus, etc., should never be permitted near finishing materials or spraying operations.

**(15) Are all wiring, conduit and switches, fixtures, motors, and lamps the explosion-proof type?**

Wiring installed in bushed conduit and explosion-proof fixtures will prevent entrance of flammable vapors to a source of ignition.

**(16) Are pipelines, booths, fans, motors, etc., adequately grounded?**

Grounding eliminates another source of ignition caused by static discharge. Revolving parts of machinery may be insulated by the oil films on the bearings. Brush contacts should be provided to remove accumulated charges off these parts.

**(17) Are finishing material containers kept closed when not in use?**

Such containers, even though empty, should be kept closed to prevent the escape of flammable or toxic vapors. Be sure the plugs are tight—and inspect to make sure no containers are broken or leaking.

You'll be surprised twice!
Once when you see the solid, precise construction.
Twice when you learn the price.
DANCKAERT
Drum Sander
Sizes 25 - 35 - 40 - 51 - 74"
two and three drums
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SEVERAL MACHINES ON EXHIBITION.
SPARE PARTS SERVICE FROM ATLANTA

CAMPBELL HAUSFELD

*announces a Complete Line for '59!*

**EIGHT COMPRESSOR SERIES**
. . . Over 2 dozen models to choose from. Hi-volume, mobile or stationary tank units.

**2 NEW SERIES OF PAINT SPRAY GUNS**
. . . for all materials and finishes. 9 models available ranging from Home Workshop type to Professional and Hi-Production models.

**PLUS** . . . COMPLETE ACCESSORY EQUIPMENT — material tanks, regulators, respirators, hose and fittings.

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**THE CAMPBELL-HAUSFELD CO.**
309-I Railroad Ave. • Harrison, Ohio

# NEW and IMPROVED PRODUCTS for FINISHING

## ABRASIVES AND SANDING EQUIPMENT

### Wide Belt Sander

MFR.: Oakley Co., Dept. WP, Bristol, Tenn.

DESCRIPTION: H-P wide belt sander, available in 24 and 38 in. models, for large and small production sanding operations.

FEATURES: Handles stock as short as 6 in., as narrow as ¼ in. and from 1/16 to 3 in. thick. Uses platen method of sanding, in which sand belt runs over platen suspended between two idler rolls. Stock is fed under platen by means of in-feed pinch rollers at rate of 20 to 140 f.p.m. Stock passes under platen and is pressed against belt by means of center contact roller, covered with soft rubber, which enables machine to compensate for variations in thicknesses. Out-feed rollers take stock from machine. Feeding mechanism is positive, eliminating kick-back. Can be furnished with serrated roll for cutting down. Or two machines, one with serrated roll and one with platen, can be placed in tandem so cutting down and polishing operations can be accomplished in sequence.

**Circle Item F1 in coupon Page 147.**

### Garnet Sandpaper

MFR.: Minnesota Mining & Mfg. Co., Dept. WP, 900 Bush Ave., St. Paul 6, Minn.

DESCRIPTION: RN Garnet sandpaper especially designed for high pressure sanding applications.

FEATURES: Product is bonded with strong, flexible, heat resistant resin said to promote consistent cut throughout production life. Available in standard grits with E weight paper or cloth backing. Claimed to last two to seven times longer. Adaptable to open drum and multiple drum sanding, edge sanding, molding sanding, spindle sanding and pneumatic drum sanding operations.

**Circle Item F2 in coupon Page 147.**

### Pneumatic Drum Sander

MFR.: Ekstrom, Carlson & Co., Dept. WP, 1400 Railroad Ave., Rockford, Ill.

DESCRIPTION: Ecco No. 18 pneumatic drum sander for wood and metal parts.

FEATURES: Has slightly inflated rubber drums which provide cushion that conforms to contoured shape. Cushioning said to assure maximum efficiency of

abrasive and long belt life. Drums measure from 2 to 16 in. in diameter, and are 9 in. wide. Special size belts also available. Small diameter and large diameter drum on one machine allow operator to sand entire piece with one handling. Has 1,200 or 1,800 r.p.m. motor, is 37 1/2 in. high to spindle, and requires 20 x 38 in. floor space. Finish, regardless of grain, said to be comparable to skilled hand sanding.

**Circle Item F3 in coupon Page 147.**

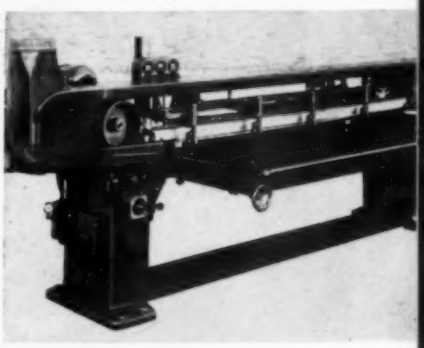
### Coated Abrasives

MFR.: Coated Abrasives Div., Armour Alliance Industries, Dept. WP, Alliance, Ohio.

DESCRIPTION: No-load coated abrasives including silicon carbide, heat-treated garnet and aluminum oxide papers.

FEATURES: Sand plastic and fiber glass as well as wood and metal, and especially recommended for sanding undercoats, enamels, shellac, primers, sealers and surfacers. Available in 9 x 11 in. sheets and cut sizes, as well as discs which can be cut from 9 x 11 in. sheet. Said to last longer and cut faster. Does not have to be pressed down. User slaps paper to remove residue and continues to use it until abrasive grains wear down to coating surface. Can be used in dry sanding operation. Non-loading coating applied to paper's surface will not contaminate sanded surface or rub off during normal use.

**Circle Item F4 in coupon Page 147.**



### Automatic Belt Sander

MFR.: Louis Gordon, Inc., Dept. WP, 701 Garrison Ave., High Point, N. C.

DESCRIPTION: BAV-1 fully automatic belt sander, a single-belt, conveyor-fed machine designed especially for large feed-through sanding operations.

FEATURES: Long elastic platen, activated by compressed air with degree of hardness controlled by easy-to-read gauges on console, presses against belt covering entire surface. Sands entire length of surface at one time. Normal sanding length is 90 in. but longer lengths are possible. Machine rugged and compact. Setup time is low and operation uncomplicated.

**Circle Item F5 in coupon Page 147.**

### 54 in. Belt Sander

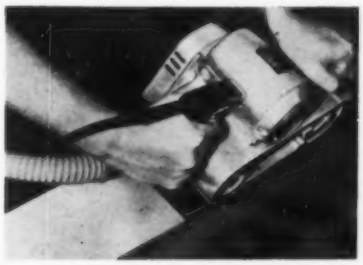
MFR.: Mattison Machine Works, Dept. WP, 345 Blackhawk Park Ave., Rockford, Ill.

DESCRIPTION: No. 456 pinch roll sander, a wide belt sander for surface preparation of rigid panels.

FEATURES: Is single overhead belt machine which uses 54 x 243 in. abrasive belt. Recommended for sanding material to gauge thickness direct from flue press prior to applying veneer. Also adaptable to finishing panels where prime requisite is finish as well as tolerance. Sanding for tolerance made possible by passing work between contact roll and platen. Power-driven bed raised or lowered to obtain desired thickness. Fine adjustment made by hand and controlled to .001 in. Standard machine handles 0 to 3 in. thicknesses; additional capacity

available on request. Holddowns, located on infeed and outfeed sides of machine, hold work flat when passing point of sanding contact. Material length limited only by work space. Feed rolls are rubber covered, synchronized and driven by variable speed motor up to 150 f.p.m. Belt change takes only minutes.

**Circle Item F6 in coupon Page 147.**



### 4 in. Belt Sander

MFR.: Skil Corp., Dept. WP, 5033 Elston Ave., Chicago 30, Ill.

DESCRIPTION: Model 445 4 in. belt sander with vacuum dust pickup attachment for dust free sanding.

FEATURES: Dust pickup said to be 90% efficient, allowing sanding and painting in same general area. Belts reportedly sand faster and last longer because clogging minimized. Model weighs 20% less yet 4 in. belt has 20% more sanding surface. Soft sponge rubber pad allows contour sanding. Designed to do flush sanding up to vertical surfaces.

**Circle Item F7 in coupon Page 147.**

### Wide Belt Sander

MFR.: Smithway Machine Co., Dept. WP, 4617 Airport Way, Seattle 8, Wash.

DESCRIPTION: New wide belt sander for top and bottom sanding of plywood, hardboard and other panels at high speed.

FEATURES: Drives two aluminum oxide belts, each 50 x 144 in., at 5,000 surface f.p.m. with work speeds variable from 20 to 150 f.p.m. Normally driven by 50 h.p. motors but frame is heavy enough to handle 100 h.p. Has tracking system which keeps belts securely aligned even when subjected to excessive moisture. Pinch roll openings are variable from 0 to 8 in., and spring-loaded to hold work securely. In typical setup, wooden platen covered with graphited canvas is used for top sanding. Bottom sanding accomplished with 70 durometer contact roll of 14 in. diameter. Because of rigid frame and controlled flexible mounting of belt heads, unit said to combine fast cut with good finish.

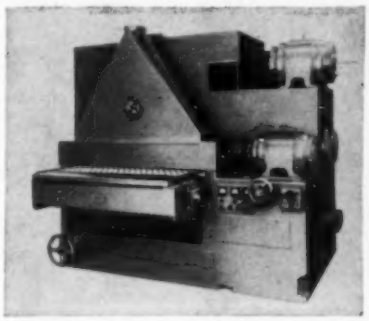
**Circle Item F8 in coupon Page 147.**

### Wide Belt Sander

MFR.: Yates-American Machine Co., Dept. WP, Beloit, Wis.

DESCRIPTION: S-53 Satin Finish wide belt sander which combines drum and belt sanding operations in one base and frame.

FEATURES: Design employs one roughing drum and two belts, two drums and one belt, or three belts. Drum sizes material and belts do finish sanding which normally requires separate pass. Belts run over conventional serrated roll or over flexible platen. Belt over platen provides finish comparable to conventional stroke sanding. Slotted contact roll for belt available with different degree of angles and durameter of rubber to obtain variation in belt action and finish. The 103 in. belt comes in 43 or 55 in. widths with speeds from 3,800 to 6,000 surface f.p.m. Belt tracing is automatic with air control assuring good oscillation. Belts arranged to operate with or against fed travel. Feed rates are from 30 to 90 f.p.m.



**Circle Item F9 in coupon Page 147.**

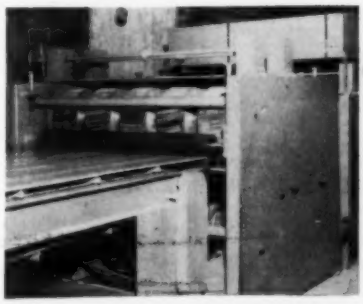
### Wide Belt Sander

MFR.: Timesaver Sanders, Dept. WP, Box 7446, Robbinsdale Sta., Minneapolis 22, Minn.

DESCRIPTION: Improved model of Shapesander wide abrasive belt sander for sanding variety of wood parts.

FEATURES: "Has "floating sanding head" which sands topside of work and allows for slight variations in stock thicknesses. Because of small radii of feed and contact rolls, small radius curved and serpentine wood parts can be handled with ease. Also sands straight wood stock. Available in 18 in. belt width.

**Circle Item F10 in coupon Page 147.**



### Flap Wheel Sander

MFR.: Union Tool Corp., Dept. WP, Warsaw, Ind.

DESCRIPTION: Flap wheel sander for sanding and polishing raw or pre-coated plywood, particle board or hardwood veneer stock.

FEATURES: Can be either manual or conveyor fed. With optional chain-driven conveyor, feed rate averages 21 f.p.m. Pinch rolls direct stock under flap wheels which rotate at 225 r.p.m. There are nine of these silicon carbine wheels stagger-mounted on two spindles. Each is 14 in. in diameter and 6 in. wide, with a ½ in. overlap between wheels. Gentle abrasive action of flaps removes rough spots and raised fibers, and is also highly effective in removing bubbles from coated stock. Standard unit accommodates panels up to 50 in. wide; larger or smaller models available on special order.

**Circle Item F11 in coupon Page 147.**

### Contact Sander

MFR.: Murdock Machines, Dept. WP, Box 642, Statesville, N. C.

DESCRIPTION: Contact sander for high production furniture sanding and polishing operations.

FEATURES: Utilizes a serrated rubber

contact wheel to back up coated abrasive belt. A suction hood, adjustable for contact wheels measuring from 6 to 14 in. in diameter, covers work area. Also has an adjustable positive belt tracing device, two-stage dust collector with 6 in. outlet at rear of machine, and uses a 2 h.p. 220-440 volt motor with switch. Claimed to operate at half the abrasive, maintenance and production cost while improving finish quality.

**Circle Item F12 in coupon Page 147.**

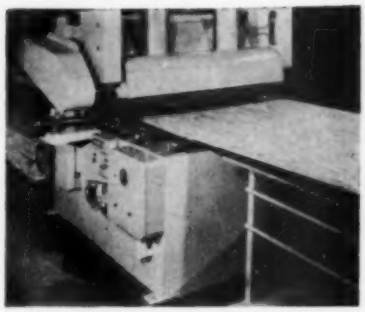
### 60 in. Flexible Drum Sander

MFR.: Merit Products, Inc., Dept. WP, 3691 Lenawee Ave., Los Angeles 16, Calif.

DESCRIPTION: Flex-Drum sander for sanding pre-sealed or raw panels up to 60 in. wide.

FEATURES: Has resilient, single unit sanding roll consisting of series of coated abrasive flaps fixed to mandrel. As mandrel rotates, flaps are extended by centrifugal force to form uniform abrasive action across entire surface of panel. As working edge of flaps wear, new abrasive face is exposed automatically so that finish is uniform from panel to panel and abrasive clogging is eliminated.

**Circle Item F13 in coupon Page 147.**

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★ Applies lacquers, resins, plastisols, vinyls, exterior paints, adhesives, waxes.

★ Recovery system eliminates waste of finishing materials.

★ Applies finish uniformly at high speed.

★ Coats all thicknesses, sizes and most shapes.

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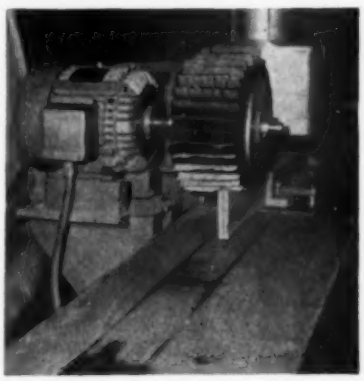


### Brush Sanding Attachment

MFR.: Bouligny Co., Dept. WP, P. O. Box 10158, Charlotte 1, N. C.

DESCRIPTION: Brush attachment on discharge table for Model 100 Molsander.

FEATURES: Said to eliminate need for second pass-through on pieces requiring light sanding. Brush is adjustable horizontally along motor shaft. Motor fits vertically on machined ways by screw adjustment for heights up to 8 in. The 3 h.p. 1,800 r.p.m. motor and switch available in either 220, 440 or 550 volt, 3-phase, 60 cycle current. Brush clamps on motor shaft come standard for either 1 1/8 or 1 1/4 inside diameter brush and designed to accommodate Vonnegut type brush sanding heads. Requires no additional labor to operate and is power fed by sander. May be installed on new machine before delivery or on present table.

**Circle Item F14 in coupon Page 147.**

### Belt Sander

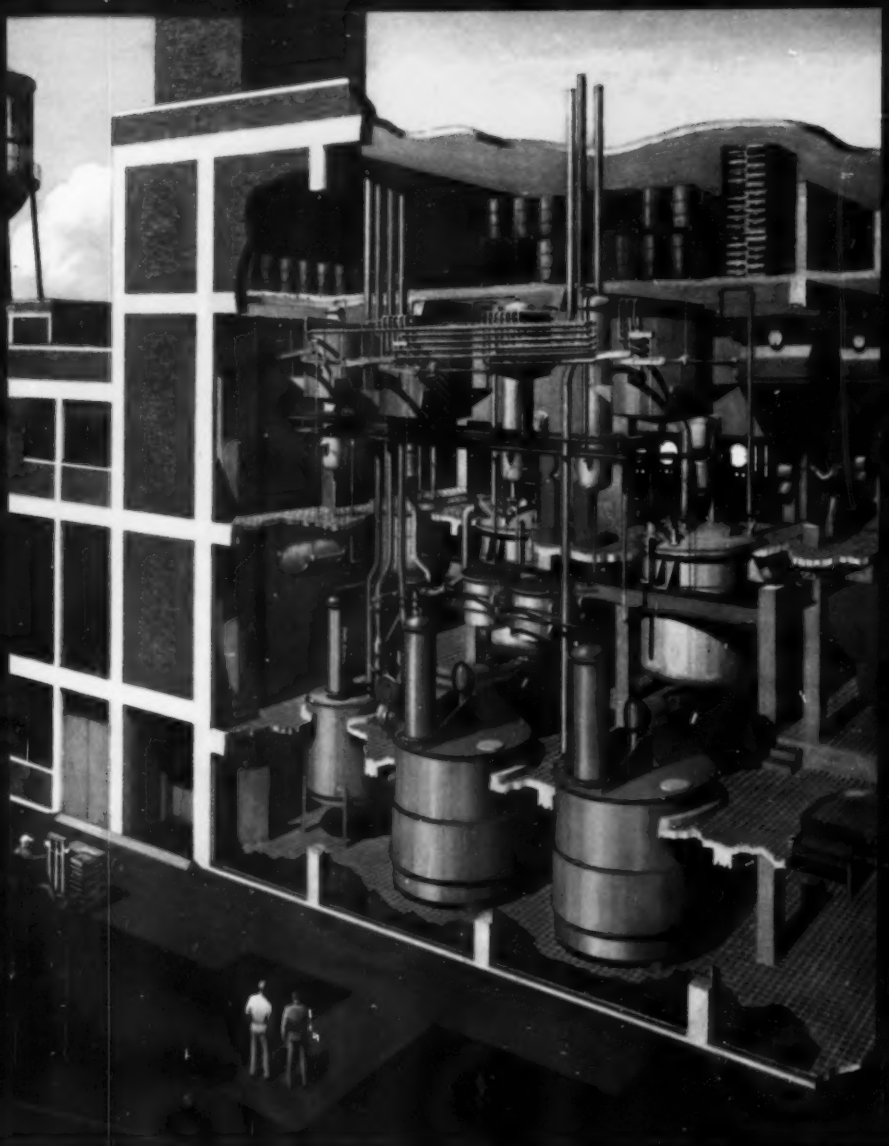
MFR.: Sherrill Machinery Co., Dept. WP, Troutman, N. C.

DESCRIPTION: Speed-Feed belt sander which sands stock from 2 in. to unlimited lengths and from 1/16 to 3 in. thick.

FEATURES: Available with coated abra-



Use Reader Service Coupon on Page 147. ▶



Most advanced paint and chemical coating polymer plant in the world featuring automated operations control . . . electronic measuring devices . . . pneumatic modulating temperature regulators

# New $1,500,000 Polymer plant assures you the finest wood finishes

- ☆ *High quality, low cost chemical processing.*
- ☆ *Polymer uniformity resulting in uniform durability and workability of paint and chemical coatings.*
- ☆ *Availability of advanced polymers: acrylics, alkyds, water-soluble resins, polyesters, epoxies, amines, etc.*

Scientific paint manufacturing at Rinshed-Mason Company is graphically demonstrated in new Building 42 . . . recently constructed on R M's 8-acre Detroit site. Over 3 million pounds of resin can be processed monthly. Accuracy and consistency assure production of the finest paints and chemical coatings for every industrial and household product.

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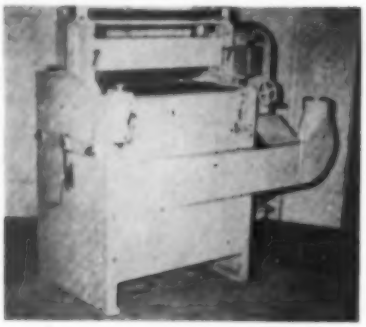
**WOLVERINE FINISHES CORPORATION**
Grand Rapids, Mich. ☆ Morganton, N. C.

R-M

*Manufacturers of* automotive and automotive refinishing, industrial, architectural, mobile home, marine, aircraft, military, furniture, food container coatings and other finishes.



sive belts 24, 38 and 52 in. wide. Feed speeds adjustable through variable speed selector ranging from 25 to 100 lineal f.p.m. Feed rate can be changed while machine is in operation. Belt can be changed in less than two minutes. Dust collecting system consists of dust collector roll which sweeps serrated rubber feed roll clean, and exhaust duct. Readily adaptable to tandem operation.

**Circle Item F15 in coupon Page 147.**

### Edge Belt Sander

MFR.: Ekstrom, Carlson & Co., Dept. WP, 1400-S Railroad Ave., Rockford, Ill.
DESCRIPTION: No. 112 edge belt sander for sanding inside radii of such items as archery bows, chair frames, serpentine drawer fronts and others.
FEATURES: Long and short parts easily handled on machine's work table which is 24 in. wide and 72 in. long. Made of ¼ in. steel plate and heavily reinforced and rigidly supported at either end by adjustable legs, table is mounted at right angles to belt and has full 5° tilt when required. The 10 in. abrasive belt runs on spiral grooved rubber pulleys. Powered by 5 h.p. motor.

**Circle Item F16 in coupon Page 147.**

## FINISHING EQUIPMENT

### Paint Spray Guns

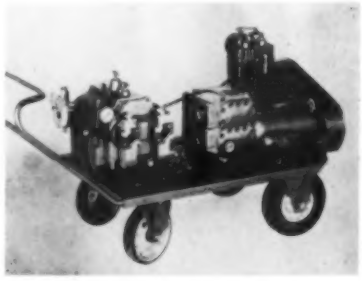
MFR.: Campbell-Hausfeld Co., Dept. WP, Harrison, Ohio.
DESCRIPTION: New line of nine paint spray guns for industrial shops, maintenance work and all other paint spray needs.
FEATURES: Line includes bleeder and non-bleeder types, with internal and external mix, as well as pressure and siphon feed. Constructed of rugged, light-weight alloy with balanced pistol grip handles. Easy adjusting turn controls gun operation. Reduction of number of parts and elimination of recessed areas speeds cleaning and servicing. Offered for continually running compressors or for regulated tank or air line system. Handle ultra fine finishes, heavy paints or quick-drying materials. Have standard pipe size connections.

**Circle Item F17 in coupon Page 147.**

### Roller Coater, Grainer

MFR.: Roto Finishing Systems, Dept WP, Compton, Calif.
DESCRIPTION: Reverse-action roller coater for presurfacing unfinished plywood or hardboard for graining or other use; also Model 916 two-color wood graining machine (illustrated).
FEATURES: As material moves into roller coater, surface is filled with prepared filler coating, then polished by the revolving reverse-action cylinder. Reverse action also helps dry application by removing excess material. If full glaze desired, material is run through a second time, or two machines can be placed in tandem to speed completion of operation. Especially recommended for upgrading lower grade panels. Available in two models to handle 30 in. and 50 in. widths. Grainer is 50 in. wide and is designed to handle cylinders with 9, 12 and 16 in. diameters. Equipped for printing photo-engraved reproduction of original veneer grains in one or two colors on flat stock.

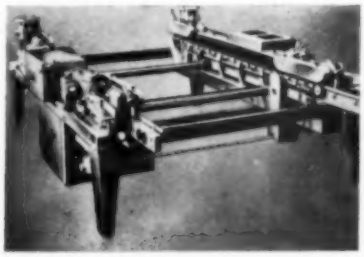
**Circle Item F18 in coupon Page 147.**



### Dolly Mounted Sprayer

MFR.: Nordson Corp., Dept. WP, 107 Jackson St., Amherst, Ohio.
DESCRIPTION: Dolly mounted airless spray unit for use as supplementary equipment in large shop or for smaller furniture manufacturing operations.
FEATURES: Unit easily moved from place to place. Because of little overspray inherent in airless system, spray booth requirements kept at minimum.

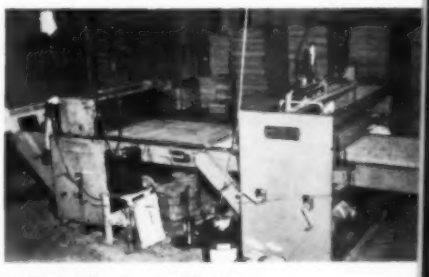
**Circle Item F19 in coupon Page 147.**



### Veneer Edge Bander

MFR.: Wilco Machine Works, Inc., Dept. WP, P. O. Box 3722, Municipal Airport, Memphis 14, Tenn.
DESCRIPTION: IMA veneer edge bander for gluing veneer or plastic strips to edges of solid or particle board panels.
FEATURES: Consists of hoppers to hold unglued strips, glue roll for application of glue to edges of panels, air actuated indexing device which allows strip and panel edges to coincide, endless heated band for curing glue, and a system of two floating saws to strip off veneer surplus, top and bottom. Applies strips to one or two edges of average unit at rate of one panel each 45 seconds. Conveyorized machine adjustable up to 120 f.p.m. and handles panels from 6 in. to 72 in. long.

**Circle Item F20 in coupon Page 147.**



### Roller Coaters, Grainers

MFR.: Dubois Machine Co., Dept. WP, Ferdinand, Ind.
DESCRIPTION: Roller coater series for applying sealers, paints, lacquers and varnishes on wood, plywood, hardboard, etc., and Model P series grainers for graining flatwork and edges.
FEATURES: All machines handle flatwork up to 4 1/2 in. thick and feed at 72 f.p.m. Model TD top double roller coater gives top surface two coats in one pass-through. Available with 26, 40 or 52 in. roll. Said to produce smooth uniform finish, with second roll almost eliminating ridging by filling in imperfections of first coat. Covers with up to 20% less coating material than single roll coater requires to apply coating at same thickness. Model B single bottom coater has 40 in. rolls. Can be used as glue spreader by re-

# EKSTROM CARLSON

## Touch-Up Sanders . . .

**use Anywhere an extension cord or an airhose will reach**

Portable . . . Low Cost Air Inflated drum provides cushion that always conforms to contour shape that approaches excellence of hand sanding. Four sizes available. Use air tool or electric drill for fast, accurate sanding, in production line or for touch-up work.

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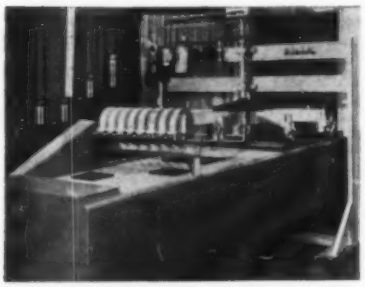
ROCKFORD - ILLINOIS


placing coating roll. Model DB double bottom roller coater gives bottom surface two coats in one pass-through. Model P series graining machines are available with 12, 26 and 38 in. rolls. Handle table tops, panels and other flatwork. With top pressure roll removed, handle edge printing from one or both sides. Rolls are wide enough to permit two operators to edge print at same time on opposite sides of machine.

**Circle Item F21 in coupon Page 147.**



**Spraying Machine Timer**

MFR.: Binks Mfg. Co., Dept. WP, 3122 Carroll Ave., Chicago 12, Ill.

DESCRIPTION: Electro-mechanical "memory" control timer added to rotary or vertical and horizontal automatic spraying machines.

FEATURES: Said to substantially reduce overspray and material loss during finishing operations. Designed to control in-

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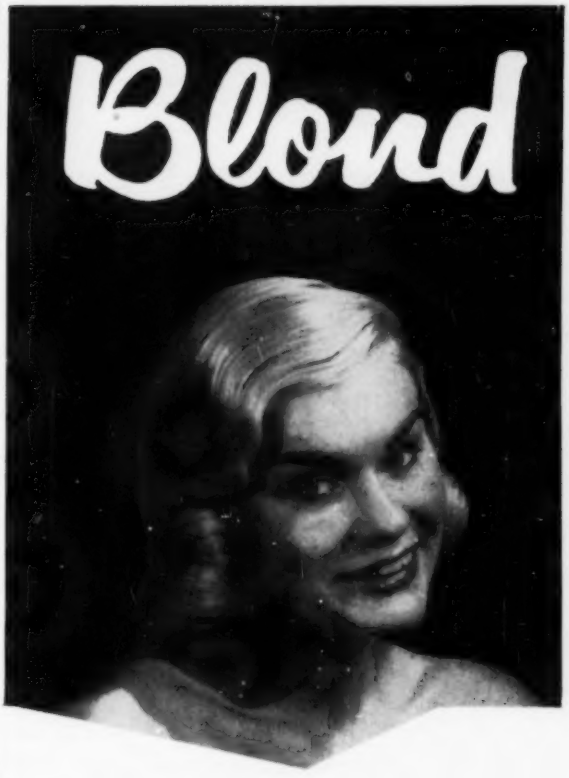


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by Dayco

Dayco Blond Wood stains give you uniform colors and tones with maximum color penetration. They dry quickly (1 hour), require no wiping or costly curing time. They can't chip, peel or wear off. They're on because they're in!

Available in a complete range of smart new decorator colors that can be mixed and blended to produce an unlimited variety of exclusive tones and shades.

For production line economy and for the attractive appearance that produces faster sales, specify Dayco Blond Wood stains. Write for chips, testing samples and prices today!

FINE FINISHES SINCE 1906

**JAMES B. DAY & COMPANY**
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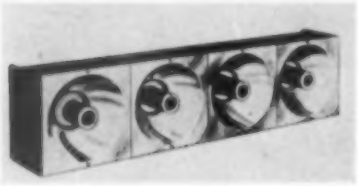
dividual spray guns so spray pattern follows outline of products. Actuates guns only when there is surface to be sprayed. Can be adapted to existing reciprocating or rotary spray machines or replace existing controls. Encased in individual housing that absolutely prevents entry of dust.

**Circle Item F22 in coupon Page 147.**



### Infrared Generator

MFR.: Dry Clime Lamp Corp., Dept. WP, Greensburg, Ind.

DESCRIPTION: Lava-coated, 1,000 watt, ceramic-type electric infrared generator which enables higher temperatures in infrared ovens.

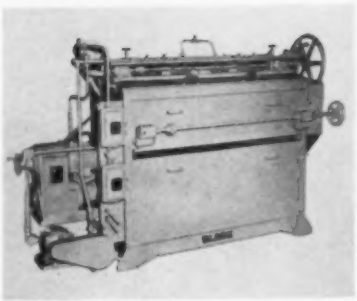
FEATURES: Makes possible use of smaller, less costly ovens with increased production. Has no rods, bulbs, quartz tubes or sockets to burn out, thus cutting maintenance costs. Temperature is controlled accurately in each section of oven by means of cyclical temperature controllers, making possible varied product production with different heat finish requirements in same oven. Temperature in each zone can be set from 0 to 100% of rated power. Generators said to be unaffected by vibration, jarring, vapors or moisture.

**Circle Item F23 in coupon Page 147.**

### Roller Coater Line

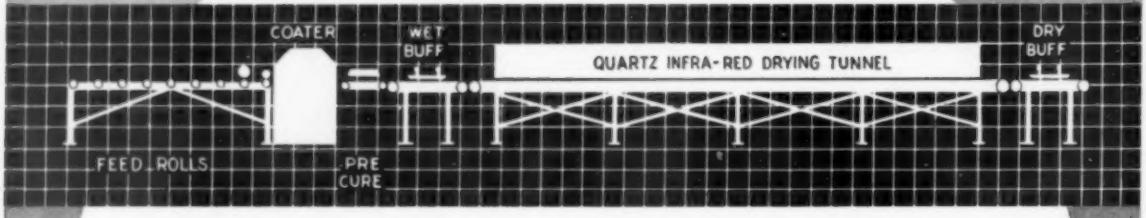
MFR.: Black Bros. Co., Inc., Dept. WP, Mendota, Ill.

DESCRIPTION: No. 22-D heavy-duty roller coaters for fast, low-cost, high quality coating of variety of flat materials.



FEATURES: Have rugged construction and rigid framing. Available in 21 standard sizes from 8 to 122 in. roll lengths in 6 in. increments. Can be arranged for coating both sides of stock simultaneously or as single top or single bottom coaters. Daylight opening between coating rolls can be adjusted from 0 to 4 1/2 in. by elevating upper assembly. This permits lower coating or feed roll to remain at stationary height for use


Experience Counts!




NEW PRE-FINISHING TECHNIQUE FOR . . .
HARDBOARD, PARTICLE BOARD, PLYWOOD

**ANOTHER GRENCO FIRST**... These new machines pre-seal and pre-coat hardboard... particle board... and plywood.

**THE PROCESS**...After film coating, surface is buffed while semi-dry. Complete drying is then accomplished in a Fuzed-quartz Infra-red Tunnel. Second buffing machine removes film haze and provides the burnishing action. An especially popular technique for hardboard pre-sealing or pre-finishing.

**GRENCO INC.**...Adding new processing techniques to their recognized leadership in the manufacture and design of dry process hardboard machinery and associated re-manufacturing equipment. Grenco's proven experience in this field is your assurance of a profitable installation.

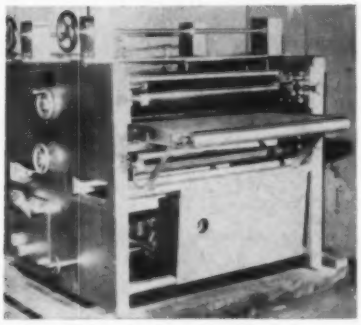
GRENCO INC. ENGINEERING · MANUFACTURING

*For Further Information, Wire, Phone or Write:*

GRENCO, INC.
2035 S. W. 58th Avenue
PORTLAND 1, OREGON
CA 6-4096
Cable address: GRENCO

in conjunction with conveyor systems. Coating rolls are all of large diameter—5, 6 1/2, 8 3/4 or 11 3/4 in. outside diameter depending on length of rolls. Patented coating reservoirs seal ends of coating and doctor rolls, eliminating dripping. Super Series 22-D available for extremely heavy-duty operations. Also available are smaller bench models of 22-D in 8, 14, 20 and 26 in. sizes, which duplicate performance of larger machines.

**Circle Item F24 in coupon Page 147.**



### Two-Stage Roll Coater

MFR.: Union Tool Corp., Dept. WP, Warsaw, Ind.

DESCRIPTION: Two-Stage Twin roll coater that coats top and bottom surfaces twice in single pass.

FEATURES: Two double assemblies are located on 18 in. centers. Flat stock is fed into unit by conveyor, and second conveyor moves it from first coating section to second. Circulating pumping unit regulates amount of coating material to upper rolls and feed pans on lower rolls. Upper rolls are individually adjusted by handwheels. Additional handwheels move doctor rolls toward and away from coating rolls to assure fine adjustment of coating thickness. Viscosity is controlled by immersion heater in supply tank which keeps material at room temperature constantly. Coats any type of fluid material. Available in 14 to 72 in. widths.

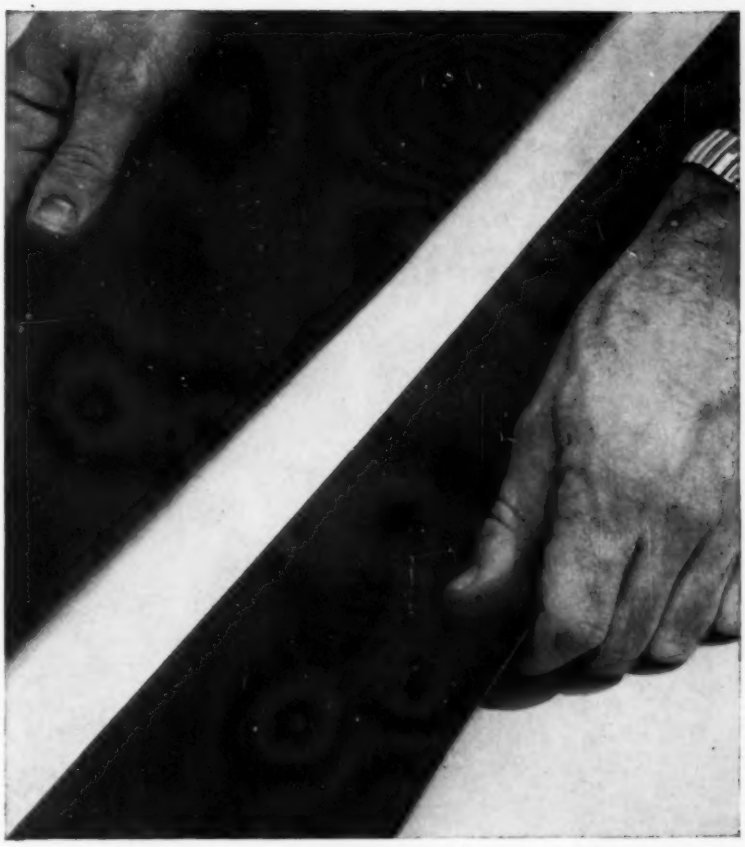
**Circle Item F25 in coupon Page 147.**

### Air-Powered Paint Pump

MFR.: Gray Co., Inc., Dept. WP, 1021 Sibley St., N. E., Minneapolis 13, Minn.

DESCRIPTION: Powerflo air-powered paint pump that dispenses from 2 in. end bung of original shipping drums.

FEATURES: Weighs only 17 1/2 lbs. and will dispense up to 120 gal. per hour for normal circulating paint system operation. Will feed up to five spray guns. Also ideal for direct supply spray applications in production and maintenance painting. Outlet pressure approximately twice that of inbound air pressure. Has three-tube design which completely separates air motor from pump assembly, eliminating chance for fluid to foul power head. Two tubes used for supply, while third returns paint to drum for continuous circulation. Adjustable bung adapter permits use in 55 gal. drums of varying height. May also be mounted

**Which backing would you specify ...and why?**

***In the above picture,*** the backing on the abrasive belt at right is Jeans, a lightweight, flexible cloth used chiefly in woodworking applications. The Drills cloth backing on the left is a heavy, extremely durable cloth used for all types of metal grinding operations. They are but two of many different types and weights of cloth, paper, fibre, and combination backing materials. Choosing the *right* one for your particular application can make a big difference in your product finishing costs. Which is why more and more manufacturers turn to the expert recommendations of Jewel Brand Abrasives Engineers. If the right choice is up to you, call on them for the backing you need. Write for details. Abrasive Products, Inc., 553 Pearl Street, South Braintree, Mass.

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rolls
sheets
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specialties

JEWEL BRAND

COATED ABRASIVES

**ABRASIVE PRODUCTS, INC.,** South Braintree 85, Massachusetts

Use Reader Service Coupon on Page 147.

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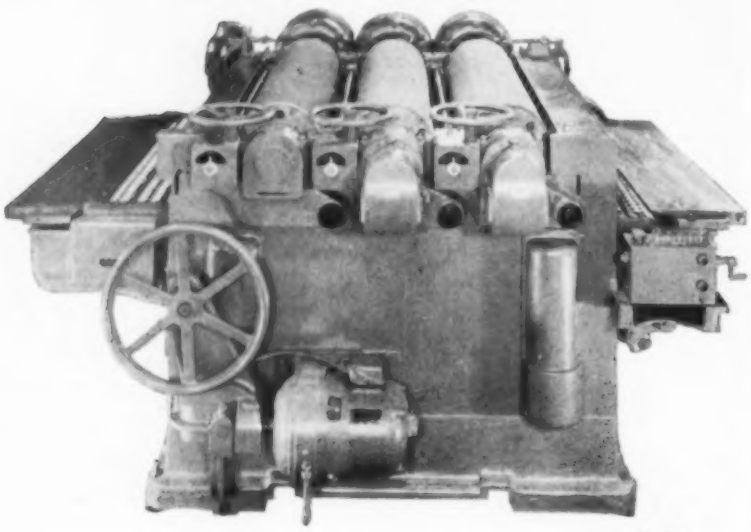
THE **SMITH**

**ENDLESS BED DRUM SANDER**



C-505 MODEL

**FIRST IN PROGRESS**

First endless bed drum sander—1896.
First and exclusive easy access but simple and positive bed and drum adjustments.
Exclusive self-oscillatig drum mechanism.
Exclusive declutching of oscillating mechanism.
All motors totally enclosed.

**FIRST IN SERVICE**

Replacement parts for all models of Smith sanders carried in stock.
Replacement part orders shipped out same day received.

**FIRST IN QUALITY**

High precision standards are a must in Smith Drum Sanders.
H. B. Smith Machine Company Drum Sanders are the measuring stick for operating efficiency—long life—low maintenance—highest quality production—close sanding tolerances.

**FIRST IN EXPERIENCE**

125 years of experience constructing woodworking machinery.
60 years of superior drum sander construction.

***Call or write today for descriptive literature—***
***Also ask about our lease plan***

## H. B. SMITH MACHINE COMPANY

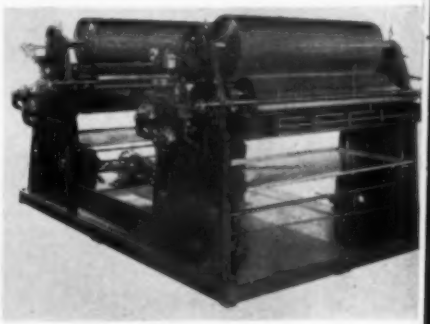
*Woodworking Machinery Since 1832*

**Smithville, Burlington County, N. J.**

*"First in Progress—First in Economy—First in Service"*


in open head drum, with use of drum clamp, or on drum cover. Unit includes air regulator for governing pump operating speed.

Circle Item F26 in coupon Page 147.



### Graining Machine

MFR.: Hamant Tool Co., Inc., Dept. WP, 512 Warren St., Dayton 9, Ohio.
DESCRIPTION: Huskitwin Model dh-158 graining machine for close-register two-color wood grain printing on panels.
FEATURES: Prints sheets, tops, fronts and panels in two closely-registered colors simultaneously. Handles panels up to 48 in. wide and 8 in. thick. Speed range is from 75 to 125 f.p.m. Both sections of machine use cylinders of precisely 15.280 in. diameter. Uses printing rolls with 8 in. diameters and lengths to match cylinders. Adjustments provided to compensate for small variations from end to end of roll. Interchangeable cylinders make unlimited wood grain selections possible. Completely automatic and quiet running.

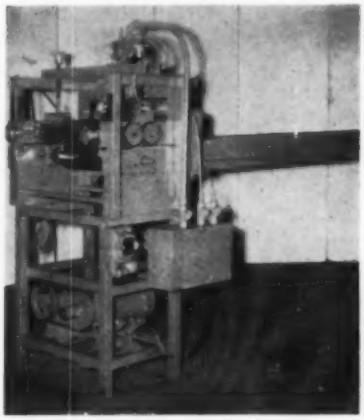
Circle Item F27 in coupon Page 147.

### Airless Spray Unit

MFR.: DeVilbiss Co., Dept. WP, Toledo, Ohio.
DESCRIPTION: Airless spray unit for spray painting where removal of vapors and overspray are either very limited or non-existent.
FEATURES: Unit is portable. Consists of pump, cart, tank, lid, air-motor-driven

agitator, elevator to raise pump when changing material containers, wire braid reinforced hose and airless spray gun with tungsten carbide spray cap. Either light or heavy-bodied material is forced through small orifice (.011 to .018 inner dimension) at pressures of from 1,800 to 2,400 p.s.i. Material released from this high pressure expands and breaks into small particles with enough velocity to carry them to surface, but not sufficient force to rebound. Material is applied much wetter since there is no air to vaporize portions of solvent.

**Circle Item F28 in coupon Page 147.**



### Pop-Up Top Coater

MFR.: Union Tool Corp., Dept. WP, Warsaw, Ind.

DESCRIPTION; Pop-up top roller coater for partial coating of stock in exact predetermined spot or area.

FEATURES: Combines electric eye, limit switch control and variable timer to apply coating in exact spot. Furnished with roller lengths from 12 to 108 in. and adaptable to almost all fluid coating jobs performed on any flat surface. Sheets are conveyor-fed into machine through set of nip rolls located on infeed side, with individual stops on nip rolls regulating feed speed. At predetermined position, timer sends signal to overhead air cylinder holding coating roll assembly up. Roll lowers and applies coating. Second variable timer lifts roll after correct amount of coating has been applied. Timers can be set for various lengths or set to give skip coatings of various patterns.

**Circle Item F29 in coupon Page 147.**

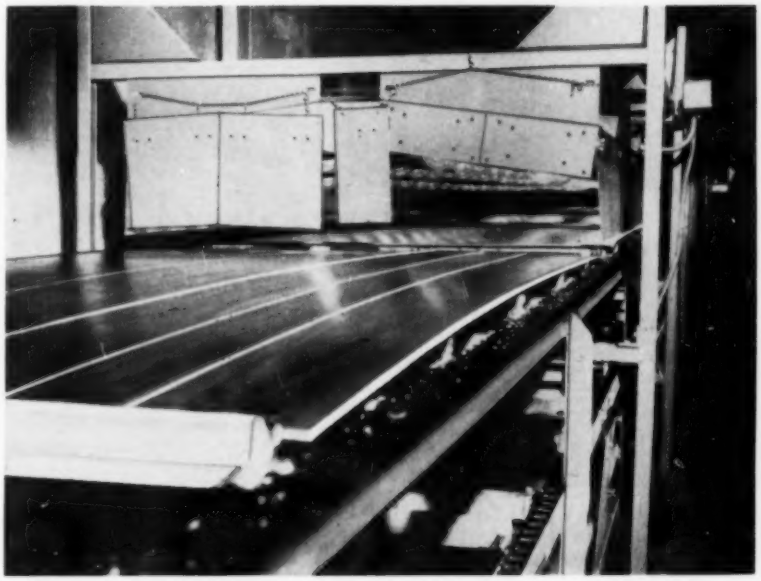
### Spray Booth Lining

MFR.: E. I. du Pont de Nemours & Co., Dept. WP, Room D-7029, Wilmington 98, Del.

DESCRIPTION: Near permanent lining material, called Armalon TFE, for coating paint spray booths.

FEATURES: Said to cut clean-up time one-third and eliminate need for stripping lacquer. Is a fluorocarbon coated glass fabric with Fairprene No. 5140 cement used as bonding agent. Overspray adheres so loosely to lining surfaces that thick


# REDUCE DRYING COSTS ON WOOD PRODUCTS WITH FOSTORIA OVENS



**TOP COAT LACQUER on 4 x 8 plywood panels dries at rate of 35 feet per minute in this 75-foot Fostoria infrared oven.**

Faster drying with better results, as well as reduced drying costs, are important advantages you will get with a Fostoria Radiant Oven.

You will dry fillers and sealers in **seconds** instead of minutes, in a Fostoria oven.

You will dry top coats in a **fraction** of the time it takes by conventional drying methods.

You will dry adhesives in laminated wood products in a minute or two—as much as five times faster by Fostoria radiant heat.

You'll save floor space, increase productivity and get a clean, fast-flowing production line when you install a Fostoria oven. In wood processing, the Fostoria Infrared System has been proved the most effective method today. As the world's largest manufacturer of infrared ovens, we can show you how to increase profits by reducing drying costs. Write us or call for a free estimate based on your processing needs.

**Infrared Division**

**FOSTORIA CORPORATION**

**FOSTORIA, OHIO**

Now, you can create new and distinctive finishes with Nacromer. Formulated for use with practically all coating vehicles . . . applied by almost any coating method, Nacromer transforms ordinary coating materials into eye-catching, sales feature finishes. Nacromer is versatile, too. It can be used on wood, metal, plastic, paper, leather, and many other materials.

If you are a coating user, you will want to learn more about how a unique Nacromer coating will help your sales. To obtain additional information, mail the coupon below. Do it today.

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PLEASE SEND ADDITIONAL INFORMATION.
WE WANT TO COAT..... (MATERIAL)
OUR COATING VEHICLE IS.....
NAME.....
COMPANY.....
ADDRESS.....
.....
THE MEARL CORPORATION
41 EAST 42nd STREET, NEW YORK 17, N.Y.

layers can be easily removed periodically by hand for an indefinite period. Accidental rips and tears easily patched.

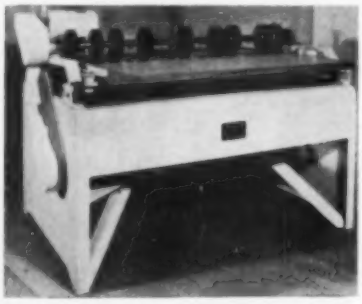
**Circle Item F32 in coupon Page 147.**

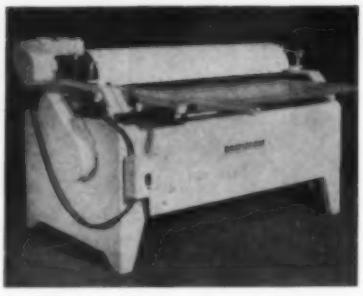
### Grooving and Scoring Units

MFR.: Multiscore, Inc., Dept. WP, 1123 W. 51st St., Seattle 7, Wash.

DESCRIPTION: Panel groover (top illustration) is precise, economical machine for normal panel grooving operations. Texture-One-Eleven unit (bottom) is combination machine designed to process plywood and hardboard in Texture One-Eleven pattern or other grooved designs.

FEATURES: Panel groover has power fed rollers, infinitely variable speed up to 84 f.p.m., and up to 22 carbide tipped





cutterheads which can process as many as 300 panels per hour. Adjusts easily for number of cutterheads or depth of groove. Can V-groove and bevel panel edges and trim excess material simultaneously. Texture-One-Eleven is heavy-duty unit. Can be converted to V-groover by means of simple accessory. Can process 300 standard 1/4 in. plywood panels or 250 blanks per hour. Has eleven carbide tipped cutterheads on main shaft, upper and lower shiplap heads, skinner saw for excess material, infinitely variable speed control and power-fed rollers.

**Circle Item F30 in coupon Page 147.**

### Two-Headed Spray Gun

MFR.: Binks Mfg. Co., Dept. WP, 3114 Carroll Ave., Chicago 12, Ill.

DESCRIPTION: Model 181 two-headed spray gun for high performance at low cost.

FEATURES: Designed primarily for application of polyester resins where accelerator mixture must be brought into contact with catalyst mixture before mixture impacts work surface. Also used for

spattering or veiling where two different materials can be sprayed with each pass of gun, and for any two-component finishing system where perfect mixing not required, or where pre-mixing is impossible or impractical. User may order air and material nozzle sizes to suit requirements. Some applications necessitate use of two different size nozzles, depending on viscosity of material being sprayed and ratio of material quantity. Has three hose arrangement, two for material and one for air. Normally uses two pressure tanks which supply equal pressure to each head; however, different pressures can be used. Standard heads are drop forged bronze, but stainless steel heads are available.

**Circle Item F31 in coupon Page 147.**

### Particle Board Filler

MFR.: Schmutz Mfg. Co., Dept. WP, Louisville, Ky.

DESCRIPTION: Power feed bottom coater for filling and leveling surface of particle board in preparation for finishing.

FEATURES: Includes two feed rollers, two hold-down rollers, an applicator roll with a stationary eccentric metering roll and three doctor blades. Metering roll controls thickness of filler coating as closely as 1/32 in. Doctor blades work filler into surface voids and remove excess filler material from surface. Rollers and blades are all mounted in heavy metal frame. Machine handles boards as wide as 54 in. and from 1/4 to 4 in. thick. Variable speed drive range is 8 to 32 f.p.m. All rollers are steel. Face of applicator roll is waffle-iron knurled.

**Circle Item F36 in coupon Page 147.**

## FINISHING MATERIALS

### Wood Finish

MFR.: Satin Surfaces, Inc., Dept. WP, P. O. Box 1403, Louisville 1, Ky.

DESCRIPTION: Satin Match, a clear wood finish for wood surfaces.

FEATURES: Dries by evaporation in 30 minutes and is water-proof, alcohol proof, acid proof and stain proof. Fortified with ultra violet absorber to pro-

tect light and bleached woods which otherwise darken under finish film when exposed to sunlight. Applied by either brush or spray and requires no thinner. Claim not to darken, become brittle, crack, chip or peel. Can be washed with mild soap and water. Is ideal one-coat final finish for Super Microsealed surfaces with no prior surface preparation necessary. Two or more coats necessary when used on conventionally sanded surfaces.

**Circle Item F33 in coupon Page 147.**

### Synthetic Pearl Pigment

MFR.: Mearl Corp., Dept. WP, 41 E. 42nd St., New York 17, N. Y.
DESCRIPTION: Nacromer Z, a synthetic pearl pigment with high brilliance.
FEATURES: In concentrated paste form, is available in formulations for use with nitrocellulose, ethycellulose, vinyl lacquer and most other coating vehicles. No additional equipment or finishing operations required. Applied by brush, spray or dip to wood, plastic, leather, etc. Available in two categories—"A" with faintly yellow tone, and "B" with faintly bluish tone. Also possible to obtain wide range of lustrous effects by adding transparent pigments or dyes. Can be used at proportions 30% less than is usual for other pearl pigments.

**Circle Item F34 in coupon Page 147.**

### Wood Finishes

MFR.: O'Neil Duro Co., Dept. WP, P. O. Box 1166, Milwaukee, Wis.
DESCRIPTION: Various wood finishes for application to furniture, prefinished flooring and paneling, etc.
FEATURES: (1) Wood toners have unusual clarity, superior light fastness. Specially formulated solvent balance results in excellent penetration and color uniformity when applied over wash-coated surfaces. Also applicable to unfinished wood. (2) Conversion-type clear synthetic is clear coating with fast drying properties similar to lacquer. Consists of resins and special catalyst thinner. Said to have advantages of spraying high solids, excellent color retention, scratch and check resistance, superior solvent resistance. (3) Abrasion resistant clear is similar to clear synthetic except that modifications in formulation give it up to four times the abrasion resistance of conventional lacquers and synthetics, without sacrificing check resistance.

**Circle Item F35 in coupon Page 147.**

### Finishing Materials

MFR.: Lilly Co., Dept. WP, High Point, N. C.
DESCRIPTION: Various wood finishing materials.
FEATURES: (1) Cellulose acetate butyrate coatings are clear or pigmented coatings for veneers, solid woods. Have improved resistance to ambering after prolonged exposure, and to rubber staining. Also provide effective barrier against migration of plasticizers from vinyl upholstering materials. Can be sprayed by

Quality is a trademark with Cal Shop furniture, a valued asset which a Binks spray finishing system helps to protect.

Binks circulating system sends finishing materials to 6 spray booths from a central storage and mixing room.

AT CALIFORNIA FURNITURE SHOPS, LTD. . . .

## circulating system for finishes insures uniformity and quality

"Excellent experience with some of Binks spray equipment in our old plant prompted us to call in Binks engineers when planning our new 100,000 sq. ft. factory," reports Joseph M. Richardson, Plant Manager for California Furniture Shops, Ltd., located in Los Angeles, California.

**Circulating system brings benefits**

Small tanks of finishing materials at each spray station have been eliminated. Instead, Binks air-operated material handling pumps send finishes direct from original 55-gallon shipping drums to each spray station through pipes. Safety is up. Handling costs and waste are down. Consistency and color are always uniform.

**Clean shop — clean exhaust**

Binks Model 19 spray guns are used to apply stains, sealers, glazes and hot lacquers. Overspray is quickly removed from work areas by Binks Dynaprecipitor water wash spray booths. The efficient water curtain in these booths traps overspray particles so well that cleaning maintenance of fans and stacks is nil.

**For complete information**

on how Binks spray finishing equipment and service can be of help to you, see your Binks industrial distributor or jobber. If you prefer, contact your nearest Binks Branch Office or write direct.

*Ask about our spray painting school*

*Open to all . . . NO TUITION . . . covers all phases.*

**Binks**
*EVERYTHING FOR SPRAY PAINTING*

SPRAY GUNS

AIR COMPRESSORS

NATIONWIDE SERVICE

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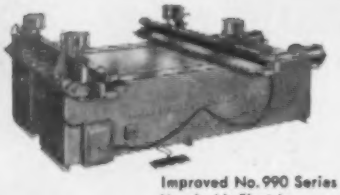
**BANDING & RIM BONDING**

**Better Tops—faster, automatically at lowest cost**

New No. 980 Series Handy Air-Electric Edge Banders



Improved No. 990 Series Handy Air-Electric Wood Moulding Banders

**The best way to band tops with veneer, plastic or moulding**

Tough jobs made easy—that's what these Handy machines do. Heat, time and pressure are accurately controlled automatically.

*Edge Banding* with veneers, plastics and kraft is done almost instantaneously with the No. 980 Series. Adjusts quickly for any size rectangular top. Operation is simple and dependable.

*Rim mouldings* are bonded to desk and fixture tops in a few minutes with far less labor and space. Two-way pressure of the No. 990 Series straightens moulding. Versatile, trouble-free.

The features of these machines are available also in a Combination Bander-Bonder.

*HANDY Manufacturing Company*

2440B West Lawrence Ave. • Chicago 25, U.S.A.

**Speeds Output 33%, Cuts Material Costs**

Production goes up . . . labor costs go down . . . when you *push-button* your pre-finishing jobs with the Union Pre-Finish Line.

In a typical application, this unique conveyorized system works like this: (1) Flat stock is fed into a brush roll machine which cleans both surfaces . . . (2) Roller coater applies lacquer or other coating . . . (3) Stock passes along drying conveyor to (4) flap wheel sander which lightly sands top surface . . . (5) Another roller coater applies second lacquer sealer . . . (6) Stock is bake-dried in infra-red drying oven and moves to (7) Cool Out Elevating Tower, an ingenious space-saving rack which holds 25 sheets to give lacquer time to set . . . (8) When sheet reaches top of tower it enters a stacking device which drops in onto a waiting skid.

The Union Pre-Finish Line, or any section of the line, can be custom-engineered to suit your specific operation. Get full details about this time-saving, labor-saving system today!

901 North Detroit Street

THE UNION TOOL CORPORATION
WARSAW, INDIANA

UNION-WALLACE-INDIANA
A MANUFACTURING GROUP DEVOTED TO PRODUCING THE HIGHEST QUALITY WOODWORKING MACHINES


conventional systems, either with or without chemical hardeners, and force or air dried. Sheens range from dead flat to high gloss. (2) Non-grain raising stains have high resistance to color change upon light exposure. (3) Dye-Seal, when used in two-step system, gives moderate bleached effect. Dries rapidly and has good adhesion. Slight, inexpensive alterations to spray equipment may be necessary. (4) Polyester coatings contain 75 to 100% film forming materials which cure to very hard, tough films with resistance to most reagents and rubber stain. Are clear or pigmented. Require special spray equipment to allow catalyst to be introduced at gun tip. One spray application or one flow coat said to give film thickness equal to three or four coats of high solid cold spray lacquer. (5) Synthetic crack fillers are used most effectively on unfinished wood. Have improved hardness, low shrinkage during drying and less fall-through. Available in custom tinted colors. Can be applied and smoothed out with spatula. After drying, may be machine or hand sanded.

**Circle Item F37 in coupon Page 147.**

### Particle Board Base Coat

MFR.: O'Neil Duro Co., Dept. WP, P.O. Box 1166, Milwaukee, Wis.

DESCRIPTION: Base coat for particle board that can be recoated with any organic finishing material—oil base, enamel, lacquer, etc.

FEATURES: Has fast air drying time, unusual bond to board, good adhesion between cover coat and subsequent coats, and good top coat hold-out. Provides hiding and filling properties. Use said to make possible a film equal in adhesion and toughness to film applied over hardwood veneer.

**Circle Item F38 in coupon Page 147.**

### Fast-Drying Sealer

MFR.: Spencer Kellogg & Sons, Inc., Dept. WP, Buffalo 5, N. Y.

DESCRIPTION: Keltrol 1074, a fast-drying vinyltoluene, vegetable oil copolymer base vehicle for sealing wood and composition board surfaces.

FEATURES: Combines fast dry with good sanding, hold-out and adhesion of topcoat. Has no special solvent requirements. Films air-dry in 15-25 minutes, and force-dry in 10-20 seconds at 250° F.

**Circle Item F39 in coupon Page 147.**

### Finish Formula

MFR.: Gilbert Spruance Co., Dept. WP, Richmond & Tioga Sts., Philadelphia 34, Pa.

DESCRIPTION: Wood finish formula called Scanlac, ideally suited for use on institutional furniture, floors and other applications involving hard use.

FEATURES: Is a water white, clear, high solids materials. Can be applied by cold or warm spray techniques. Claimed to eliminate technical problems sometimes involved in applying finishes thus stepping up production. Has high resistance

to stains, alcohol and solvents in addition to excellent color retention. Available in various sheens.

**Circle Item F40 in coupon Page 147.**

## PLASTIC LAMINATES

### Plastic Surfacing

MFR.: Laminated Products Dept., General Electric Co., Dept. WP, Coshocton, Ohio.

DESCRIPTION: Textured Textolite plastic surfacing for desks and table tops.

FEATURES: Said to have the appearance of third dimension and the feel of textured material. Is durable and has no glare. Does not show fingerprints and smudges as readily. Available in selected colors and patterns, including solids, mists and grains in standard sheet sizes.

**Circle Item F41 in coupon Page 147.**

### Surfaced Laminated Panels

MFR.: Marsh Wall Products, Inc., Dept. WP, Dover, Ohio.

DESCRIPTION: Marlite surfaced laminated panels.

FEATURES: Designed as special service for customers unable to manufacture glued panels with own facilities. Line includes 1/4 in. panel for sliding doors, solid core panels for instrument boards, shelving, etc., in several sizes, or lightweight core panels for partition systems. All are available in any of Marlite colors, woodgrains or marble patterns.

**Circle Item F42 in coupon Page 147.**

### Plastic Laminate Tops

MFR.: Pioneer Plastics Corp., Dept. WP, Sanford, Me.

DESCRIPTION: Plastic laminate dinette tops in silk screen Designer Series patterns.

FEATURES: Tone brilliance of patterns achieved by serigraphy, a refinement of silk screen printing process. Colors register in contrast to woodgrain, onyx and solid color backgrounds. Patterns now on market include Gercian Border, Tulip, Fern and Trellis. Custom-designed patterns also available.

**Circle Item F43 in coupon Page 147.**

### Decorative Laminates

MFR.: Formica Corp., Subsidiary of American Cyanamid Co., Dept. WP, Cincinnati, Ohio.

DESCRIPTION: New 4 x 6 ft. sheet introduced into standard Sunrise line of decorative laminates.

FEATURES: Larger size said to eliminate waste in making large tables and desks, as well as permitting fabricators to make counters with high back splash areas out of one sheet. With new size, line now available in 18 different sheet sizes, ranging from 2 x 5 ft. to 4 x 10 ft. Line also available in 72 colors and patterns.

**Circle Item F44 in coupon Page 147.**

*See Page 104 for wood finishing literature.*


DIAMOND LUMBER CO. reports...

"We Sand and Polish 14 Door Skins per Minute!"*

TIMESAVER® SPEEDBELT SANDERS

*That's the amazing production report made by E. R. Knokey, General Mgr., Plywood Div. of the Diamond Lumber Co., Tillamook, Oregon. Here's the story:

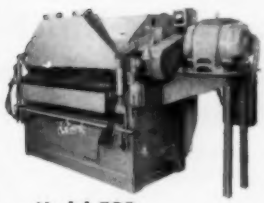
*"The line of Timesaver Model TOP Speedbelt Sanders that we have installed are used primarily for sanding door skins. The skins are mostly 3 ply plywood made from Rotary Phillipine Lauan and range in size from 18" to 48" in width and from 72" to 82" in length. We sand and polish approx. 14 door skins per min. and do an excellent job."*

When not running door skins, Diamond Lumber uses the Timesaver line to sand hardwood plywood panels which are normally 1/4" to 3/4" thick and 4x8 ft. in size. Woods in this category are Mahogany, Walnut, Cedar, Ash and various other hardwood species. Results on these materials are also excellent.

Other manufacturers such as *Anacortes Veneer, Inc.* and *Aberdeen Plywood and Veneers, Inc.* are also using Timesaver "Speedbelt" Sanders in their finishing operations. These are only a few of the many Timesaver installations where manufacturers are achieving savings in labor and materials while producing the desired top quality finishes. Whether your production requirements call for a single machine or a series set-up, you, too can enjoy the advantages of wide abrasive belt sanding at a minimum cost.

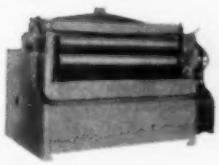
*Write Today . . . get the facts and the figures on how the amazing Timesaver "Speedbelt" Sander can do your job . . . better and at less cost.*

There's a TIMESAVER Sander for every job!



**Model TOP**

Available in belt widths of 24", 36", 50" and 54". Sanding action is overhead.



**Model SPL**

Available in belt widths of 24", 36" and 50". Sanding action is for underside of work.

Pioneers in Wide Belt Sanding for the Woodworking Industry

TIMESAVER SANDERS

Dept. C-1 Box 7446 • Robbinsdale Station • Minneapolis 22, Minn.

**Industry-wide Look**
*Continued from page 41*

inherent differences in wood and control dimensional changes. . . .

"Equally important are the controls that must be applied to processing schedules and methods of application. Prescribed film builds must be maintained which will regulate air and fluid pressures, gun settings and speed of application. Processing times and temperatures will have to be closely maintained."

In finishes themselves, developments of comparatively recent origin have introduced to the wood industry a whole new vocabulary of words that sound like newness itself—words like acrylics, polyurethanes, butyrates, polyesters, epoxies, and others. For the most part, the new words mean new finishes that offer in some cases almost unbelievable durability in coatings for fine wood products.

While there is no unanimity of opinion among finish manufacturers on what's newest and what's best in wood finishing materials, representative producers' statements in this Progress Report clearly indicate that the next few years will witness greater developments in finishes for fine wood products than have been noticeable in the past decade or more. They also reveal that the finish producers today are paying more serious attention to the problems of the industrial wood finishing department than ever before.

Several finish producers, incidentally, offer the opinion that airless spraying, pressure curtain coating, hydrospraying, roller coating and similar important developments in equipment and methods "will encourage the further growth of finishing prior to assembly or even prior to complete fabrication . . . (also) finishing and shipment of furniture in knocked-down form for assembly by the retailer or the purchaser." Expansion of automation in the flat stock field, such as wall paneling and flooring, is also expected.

The production line trend in wood finishing, thanks to ingenious ideas in conveyorization, wide belt sanders, and many other significant changes in equipment and techniques, not only has made it necessary for suppliers to improve organic coatings but is expected to bring major new coating developments such as 100% convertible plastic coatings, like the polyesters, and the newer concepts in organic finishes, such as polyurethanes and water-reducible coatings, will become as common as lacquers and conversion coatings are today.

Hand in hand with new developments in finishing materials, methods and equipment has come a marked increase in acceptance of infrared drying. Long used in metal finishing, it is only now beginning to come into its own in the wood field, thanks to the need to accelerate the drying process as part of the effort to reduce cost.

As one experienced wood finishing man puts it, "The interest in infrared drying will gain in momentum because developments in other fields, such as hot and airless spray, are resulting in finishing materials that are more suitable for this type of drying."

It is also possible that, as materials change and equipment and techniques improve, electrostatic spraying will be used more widely in finishing wood.

Conveyorization and other forms of mechanized handling will grow in all kinds of wood finishing operations as engineers devise new ways mechanically to solve certain problems which heretofore seemed solvable only by human hands.

Speaking of the need for more use of conveyorized finishing systems in the wood field, one noted conveyor engineer and designer points to the growing clamor for an increase in the minimum wage to $1.25 per hour. "This means," he states, "that not only minimum wages but wages up the line will be increased, thus further burdening the industry with labor costs."

"I feel," he concludes, "that modernization of handling techniques and specialized machines which will reduce indirect labor are possibly the greatest challenge the manufacturing industry faces today."

Summing up, the timeliness of this industry-wide look at recent, current and near-future trends and developments in wood finishing is emphasized by a letter received from a Wood & Wood Products reader in faraway New Zealand.

"My company," he writes, "is most interested in the automatic priming of weatherboards and fascia materials. We have developed a type of machine which will produce a very high quality primed finish. Automatic painting and priming is very much in its infancy in this country, but we are quite sure that the potential for this type of operation is quite considerable and should go well with end users."

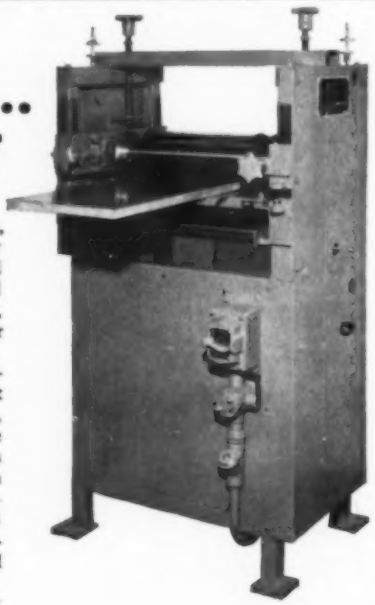
It's a small world, indeed—and the exciting new developments and trends in finishing make the whole wood world kin, don't they?


**Applies base coat and/or finish coat... to cabinet doors or other flat surfaces**

When it comes to coating a flat surface, nothing can rival the roller method for speed, simplicity or quality of finish. All these advantages are provided in full measure by the Union #5 Roller Coater, a low-cost, space-saving unit designed for experimental and light-duty work.

The #5 applies paint, lacquer, wax, adhesives—*any fluid substance*—to any flat work . . . assures perfect results every time, thanks to precision control of roll pressure and coating material feed. Offset rolls come in 14", 26", 38" and 50" widths with openings adjustable from 0" to 4". Quarter-horse motor provides feed rate of 75 fpm. Choice of top, bottom or double surface coating arrangement. Many optional features available for special needs.

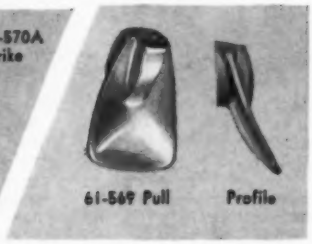
Write for folder giving details about the #5 and the complete line of Union Roller Coaters. Special problems will receive the prompt attention of our engineering staff.

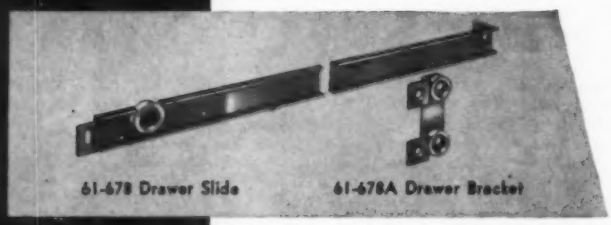


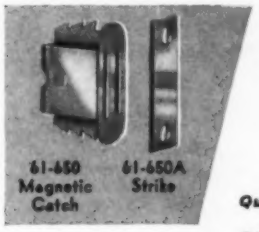
Union #5 Roller Coater with 14" rolls. Protective base panel not standard on wider models.

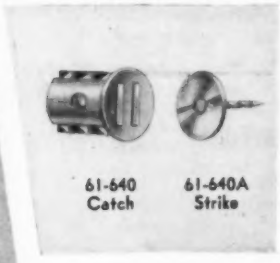
900 North Detroit Street
THE UNION TOOL CORPORATION
WARSAW, INDIANA

UNION-WALLACE-INDIANA
A MANUFACTURING GROUP DEVOTED TO PRODUCING THE HIGHEST QUALITY WOODWORKING MACHINES








# *Anticipating your needs...*

is one way by which National Lock Company constantly strives to fulfill its position as leading hardware supplier to the woodworking industry.

Here are representative new products that have been added to the already extensive National Lock hardware line. Samples promptly provided upon request.

National Lock stylists and engineers will assist you in designing both decorative and functional cabinet hardware confined to your use. Write us for complete information.

***Quality Hardware . . . . All From 1 Source***

*PULLS • HINGES • CATCHES • KNOBS*
*LATCHES • FASTENERS*

## NATIONAL LOCK COMPANY

**INDUSTRIAL HARDWARE DIVISION**

**ROCKFORD, ILLINOIS**

# WOOD FINISHING BUYERS' GUIDE

**Here is your up-to-the-minute list of the wood finishing products and services offered by more than 150 manufacturers. The list has been alphabetized by products and services to enable you to rapidly find the companies that make what you need. Appended to the product list is a complete, alphabetized list of all the names and addresses of manufacturers included in the Buyers' Guide. Be sure, also, to see advertisements of finishing suppliers in this issue.**

## ABRASIVES

**BANDS**
- Armour Alliance Industries
- Behr-Manning Co.
- Carborundum Co.
- Clover Mfg. Co.
- Gordon Inc., Louis
- Michigan Abrasives Co.
- Mid-West Abrasive Co.
- Minnesota Mining and Mfg. Co.
- Sand-Rite Mfg. Co.
- Yates-American Machine Co.

**BELTS**
- Abrasive Products Inc.
- Armour Alliance Industries
- Behr-Manning Co.
- Carborundum Co.
- Clover Mfg. Co.
- Gordon Inc., Louis
- Michigan Abrasives Co.
- Mid-West Abrasive Co.
- Minnesota Mining and Mfg. Co.
- Process Engineering Corp.
- Sand-Rite Mfg. Co.
- Skil Corp.
- Yates-American Machine Co.

**DISC**
- Abrasive Products Inc.
- Armour Alliance Industries
- Behr-Manning Co.
- Carborundum Co.
- Clover Mfg. Co.
- Gordon Inc., Louis
- Michigan Abrasives Co.
- Mid-West Abrasive Co.
- Minnesota Mining and Mfg. Co.
- Sand-Rite Mfg. Co.
- Skil Corp.
- Yates-American Machine Co.

**ROLLS**
- Abrasive Products Inc.
- Armour Alliance Industries
- Behr-Manning Co.
- Carborundum Co.
- Clover Mfg. Co.
- Gordon Inc., Louis
- Michigan Abrasives Co.
- Mid-West Abrasive Co.
- Minnesota Mining and Mfg. Co.
- Sand-Rite Mfg. Co.

**SHEETS**
- Abrasives Products Inc.
- Armour Alliance Industries
- Behr-Manning Co.
- Carborundum Co.
- Clover Mfg. Co.
- Gordon Inc., Louis
- Michigan Abrasives Co.
- Mid-West Abrasive Co.
- Minnesota Mining and Mfg. Co.
- Skil Corp.
- SpeedWay Mfg. Co., Div. Thor Power Tool Co.
- United Mineral & Chemical Corp.

**SLEEVES**
- Armour Alliance Industries
- Behr-Manning Co.
- Carborundum Co.
- Clover Mfg. Co.
- Gordon Inc., Louis
- Michigan Abrasives Co.
- Mid-West Abrasive Co.
- Minnesota Mining and Mfg. Co.
- Sand-Rite Mfg. Co.
- Skil Corp.

## AIR COMPRESSORS
- Binks Mfg. Co.
- Campbell-Hausfeld Co.
- DeVilbiss Co.
- Gardner-Denver Co.
- Ingersoll-Rand Co.
- M & E Mfg. Co.
- Paasche Air Brush Co.
- Quincy Compressor Co.
- Spee-Flo Co.

## BLOWERS
- American Air Filter Co.
- Day Co.
- Despatch Oven Co.
- Ingersoll-Rand Co.
- Kirk & Blum Mfg. Co.
- Skil Corp.

## BUFFERS AND POLISHERS
- Black & Decker Mfg. Co.
- Clair Mfg. Co., Inc.
- Gardner-Denver Co.
- Skil Corp.

## CONVEYORS

**BELT**
- Alvey Conveyor Mfg. Co.
- Automation Equipment Co.
- Buschman Co., E. W.
- Fostoria Corp.
- Koch, Geo., Sons Inc.
- Oliver Corp., A. B. Farquhar Div.
- Rapids-Standard Co., Inc.
- Standard Conveyor Co.
- Union Tool Corp.
- United States Rubber Co.
- Wallace & Co., L. R.
- Yates-American Machine Co.

**HYDRAULIC CONTROLS**
- Vickers, Inc.

**LIFTS**
- Alvey Conveyor Mfg. Co.
- Automation Equipment Co.
- Buschman Co., E. W.
- Koch, Geo., Sons Inc.
- M & E Mfg. Co.
- Standard Conveyor Co.
- Union Tool Corp.

**MESH BELT**
- Despatch Oven Co.

**ROLLER**
- Alvey Conveyor Mfg. Co.
- Automation Equipment Co.
- Buschman Co., E. W.
- Koch, Geo., Sons Inc.
- Oliver Corp., A. B. Farquhar Div.
- Rapids-Standard Co., Inc.
- Standard Conveyor Co.
- Union Tool Corp.

**SKATE WHEEL**
- Alvey Conveyor Mfg. Co.
- Automation Equipment Co.
- Buschman Co., E. W.
- Koch, Geo., Sons Inc.
- Oliver Corp., A. B. Farquhar Div.
- Rapids-Standard Co., Inc.
- Standard Conveyor Co.
- Union Tool Corp.

**SLAT**
- Alvey Conveyor Mfg. Co.
- Automation Equipment Co.
- Buschman Co., E. W.
- Despatch Oven Co.
- Koch, Geo., Sons Inc.
- Oliver Corp., A. B. Farquhar Div.
- Rapids-Standard Co., Inc.
- Standard Conveyor Co.
- Union Tool Corp.

**TROLLEY**
- Buschman Co., E. W.
- Despatch Oven Co.
- Oliver Corp., A. B. Farquhar Div.
- Rapids-Standard Co., Inc.
- Spra-Con Co.

## CYLINDERS

**AIR**
- Bellows Co.
- Schrader's Son, A., Div. Scovill Mfg. Co., Inc.
- Valvair Div.

**HYDRAULIC**
- Bellows Co.
- Valvair Div.
- Vickers Inc.

## DUST CONTROL SYSTEMS

American Air Filter Co.
Day Co.
Despatch Oven Co.
DeVilbiss Co.
Kirk & Blum Mfg. Co.
Wheelabrator Corp.

## EXHAUST SYSTEMS

American Air Filter Co.
Day Co.
Despatch Oven Co.
DeVilbiss Co.
General Equipment, Inc.
Kirk & Blum Mfg. Co.
Koch, Geo., Sons Inc.
M & E Mfg. Co.
Mahon Co., R. C.
Ohio Blow Pipe Co.
Paasche Air Brush Co.
Spra-Con Co.

## FACE MASKS, GOGGLES, etc.

Binks Mfg. Co.
M & E Mfg. Co.

## FANS

American Air Filter Co.
Binks Mfg. Co.
Day Co.
Despatch Oven Co.
Kirk & Blum Mfg. Co.
M & E Mfg. Co.
Ohio Blow Pipe Co.
Paasche Air Brush Co.

## FILTERS

American Air Filter Co.
Day Co.
Despatch Oven Co.
Kirk & Blum Mfg. Co.
Nordson Corp.
Spee-Flo Co.

## FINISHING MATERIALS

### BLEACH

American-Marietta Co.
Day & Co., James B.
Dolan & Co., Inc. V. J.
Grand Rapids Varnish Corp.
Lilly Co.
Lilly Varnish Co.
Lindeman Wood Finish Co., Inc.
Pittsburgh Plate Glass, Industrial Finishes Div.
Sherwin-Williams Co., Industrial Finishes Div.
Wolverine Finishes

### DYE-SEALER

Lilly Co.
Reliance Varnish Co., Inc.

### ENAMEL

American-Marietta Co.
Arco Co.
Barrett Varnish Co.
Day & Co., James B.
Dolan & Co., Inc. V. J.
DuPont Co. Industrial Finishes
Duralac Chemical Corp.
Glidden Co.
Grand Rapids Varnish Corp.
Interchemical Corp. Finishes Div.
Lilly Co.
Lilly Varnish Co.
Minnesota Paints, Inc.
O'Brien Corp.
O'Neil Dure Co.
Pittsburgh Plate Glass, Industrial Finishes Div.
Randolph Products Co.
Reliance Varnish Co., Inc.
Robertson Co.
Sherwin-Williams Co., Industrial Finishes Div.
United Wallpaper Inc.
Westinghouse Electric Corp., Micarta Div.
Wolverine Finishes

### FILLER

American-Marietta Co.
Barrett Varnish Co.
Beverly Mfg. Co.
Day & Co., James B.
Dolan & Co., Inc. V. J.
DuPont Co., Industrial Finishes
Glidden Co.
Grand Rapids Varnish Corp.
Jellico Coal & Chemical Co.
Lilly Co.
Lilly Varnish Co.
Lindeman Wood Finish Co., Inc.
Minnesota Paints, Inc.
O'Brien Corp.
O'Neil Duro Co.
Pittsburgh Plate Glass, Industrial Finishes Div.
Reliance Varnish Co., Inc.
Robertson Co.
Roddis Plywood Corp.
Sherwin-Williams Co., Industrial Finishes Div.
United States Plywood Corp.
Wolverine Finishes

### INK, GRAINING

Lilly Co.
Reliance Varnish Co., Inc.

### LACQUER

American-Marietta Co.
Arco Co.
Barrett Varnish Co.
Day & Co., James B.
Dolan & Co., Inc. V. J.
DuPont Co., Industrial Finishes
Duralac Chemical Corp.
General Plywood Corp.
Glidden Co.
Grand Rapids Varnish Corp.
Hercules Powder Co.
Interchemical Corp., Finishes Div.
Jellico Coal & Chemical Co.
Lilly Co.
Lilly Varnish Co.
Lindeman Wood Finish Co., Inc.
O'Brien Corp.
O'Neil Duro Co.
Pierce & Stevens Chemical Corp.
Pittsburgh Plate Glass, Industrial Finishes Div.
Randolph Products Co.
Reliance Varnish Co., Inc.
Robertson Co.
Satin Surfaces, Inc.
Sherwin-Williams Co., Industrial Finishes Div.
Spruance Co., Gilbert
United Lacquer Mfg. Corp.
United States Plywood Corp.
Wolverine Finishes

### LINSEED OIL

American-Marietta Co.
Lilly Varnish Co.
Pittsburgh Plate Glass, Industrial Finishes Div.
Reliance Varnish Co., Inc.
Spencer Kellogg and Sons, Inc.
Wolverine Finishes

### PAINT

American-Marietta Co.
Arco Co.
Barrett Varnish Co.
DuPont Co., Industrial Finishes
Glidden Co.
Grand Rapids Varnish Corp.
Lilly Varnish Co.
Lindeman Wood Finish Co., Inc.
Minnesota Paints, Inc.
O'Brien Corp.
O'Neil Duro Co.
Pittsburgh Plate Glass, Industrial Finishes Div.
Reliance Varnish Co., Inc.
Robertson Co.
Sherwin-Williams Co., Industrial Finishes Div.
Spruance Co., Gilbert
United Wallpaper Inc.
Westinghouse Electric Corp., Micarta Div.
Wolverine Finishes

### PIGMENTS, SYNTHETIC

Mearl Corp.

### POLYESTER

American-Marietta Co.
Barrett Varnish Co.
Glidden Co.
Grand Rapids Varnish Corp.
Lilly Co.
Lilly Varnish Co.
Pittsburgh Plate Glass, Industrial Finishes Div.
Reliance Varnish Co., Inc.
Sherwin-Williams Co., Industrial Finishes Div.
United Wallpaper Inc.
Wolverine Finishes

### PRIMER

American-Marietta Co.
Arco Co.
Barrett Varnish Co.
Day & Co., James B.
Dolan & Co., Inc. V. J.
DuPont Co., Industrial Finishes
Glidden Co.
Grand Rapids Varnish Corp.
Interchemical Corp., Finishes Div.
Lilly Co.
Lilly Varnish Co.
Lindeman Wood Finish Co., Inc.
Minnesota Paints, Inc.
O'Brien Corp.
O'Neil Duro Co.
Pittsburgh Plate Glass, Industrial Finishes Div.
Reliance Varnish Co., Inc.
Robertson Co.
Roddis Plywood Corp.
Sherwin-Williams Co., Industrial Finishes Div.
United States Plywood Corp.
Westinghouse Electric Corp., Micarta Div.
Wolverine Finishes

### SEALER

American-Marietta Co.
Arco Co.
Barrett Varnish Co.
Day & Co., James B.
Dolan & Co., Inc. V. J.
DuPont Co., Industrial Finishes
Glidden Co.
Grand Rapids Varnish Corp.
Interchemical Corp., Finishes Div.
Jellico Coal & Chemical Co.
Lilly Co.
Lilly Varnish Co.
Lindeman Wood Finish Co., Inc.
Minnesota Paints, Inc.
O'Brien Corp.
O'Neil Duro Co.
Pierce & Stevens Chemical Corp.
Pittsburgh Plate Glass, Industrial Finishes Div.
Ply-Seal Div., International Chemical Co., Inc.
Robertson Co.
Roddis Plywood Corp.
Satin Surfaces, Inc.
Sherwin-Williams Co., Industrial Finishes Div.
Spruance Co., Gilbert
United States Plywood Corp.
Wolverine Finishes

### SHELLAC

Barrett Varnish Co.
Day & Co., James B.
Duralac Chemical Corp.
Lilly Varnish Co.
Pierce & Stevens Chemical Corp.
Pittsburgh Plate Glass, Industrial Finishes Div.
Reliance Varnish Co., Inc.
Roddis Plywood Corp.
Sherwin-Williams Co., Industrial Finishes Div.
Wolverine Finishes

### STAIN

American-Marietta Co.
Arco Co.
Barrett Varnish Co.
Day & Co., James B.
Dolan & Co., Inc. V. J.
DuPont Co., Industrial Finishes
Duralac Chemical Corp.
Glidden Co.
Grand Rapids Varnish Corp.
Interchemical Corp., Finishes Div.
Jellico Coal & Chemical Co.
Lilly Co.
Lilly Varnish Co.
Lindeman Wood Finish Co., Inc.
Minnesota Paints, Inc.
O'Brien Corp.
O'Neil Duro Co.
Pierce & Stevens Chemical Corp.
Pittsburgh Plate Glass, Industrial Finishes Div.
Reliance Varnish Co., Inc.
Robertson Co.
Roddis Plywood Corp.
Sherwin-Williams Co., Industrial Finishes Div.

United States Plywood Corp.
Wolverine Finishes

**THINNER**
American-Marietta Co.
Arco Co.
Barrett Varnish Co.
Day & Co., James B.
Dolan & Co., Inc. V. J.
DuPont Co., Industrial Finishes
Grand Rapids Varnish Corp.
Interchemical Corp., Finishes Div.
Jellico Coal & Chemical Co.
Lilly Co.
Lilly Varnish Co.
Lindeman Wood Finish Co., Inc.
Minnesota Paints, Inc.
O'Brien Corp.
O'Neil Dura Co.
Pittsburgh Plate Glass, Industrial Finishes Div.
Potter Paint Co., Inc.
Randolph Products Co.
Reliance Varnish Co., Inc.
Robertson Co.
Roddis Plywood Corp.
Sherwin-Williams Co., Industrial Finishes Div.
Spruance Co., Gilbert
Westinghouse Electric Corp., Micarta Div.
Wolverine Finishes

**TONERS, PIGMENTED**
Lilly Co.

**VARNISH**
American-Marietta Co.
Arco Co.
Barrett Varnish Co.
DuPont Co., Industrial Finishes
Glidden Co.
Grand Rapids Varnish Corp.
Interchemical Corp., Finishes Div.
Jellico Coal & Chemical Co.
Lilly Co.
Lilly Varnish Co.
Lindeman Wood Finish Co., Inc.
Minnesota Paints, Inc.
O'Brien Corp.
Pierce & Stevens Chemical Corp.
Pittsburgh Plate Glass, Industrial Finishes Div.
Reliance Varnish Co., Inc.
Robertson Co.
Sherwin-Williams Co., Industrial Finishes Div.
Spruance Co., Gilbert
United Wallpaper Inc.
Westinghouse Electric Corp., Micarta Div.
Wolverine Finishes

**VEHICLES, POLYURETHANE**
Spencer Kellogg & Sons, Inc.

**WATER REPELLENT**
Protection Products Mfg. Co.

## FINISHING SYSTEMS

**AIRLESS SPRAY**
Binks Mfg. Co.
DeVilbiss Co.
Nordson Corp.
Spee-Flo Co.

**AUTOMATIC SPRAY**
Binks Mfg. Co.
DeVilbiss Co.
Nordson Corp.
Paasche Air Brush Co.
Spee-Flo Co.

**DIP COATERS**
Despatch Oven Co.
DeVilbiss Co.
Koch, Geo., Sons Inc.
Mahon Co., R. C.
Spee-Flo Co.
Spra-Con Co.

**ELECTROSTATIC SPRAY**
Ransburg Electro-Coating Corp.

**FLOW COATERS**
Despatch Oven Co.
Joyce Research & Development Corp.
Koch, Geo., Sons Inc.
Mahon, Co., R. C.
Spra-Con Co.
Wallace & Co., L. R.

**GRAINERS**
American Richwood Products Co.
Dubois Machine Co.
Hamant Tool Co., Inc.
Roto Finishing Systems
Schmutz Mfg. Co., Inc.
Union Tool Corp.

**HOT SPRAY**
DeVilbiss Co.
Nordson Corp.
Spee-Flo Co.

**HYDRAULIC SPRAY**
Gray Co., Inc.
Nordson Corp.

**MANUAL SPRAY**
Binks Mfg. Co.
Campbell-Hausfeld Co.
DeVilbiss Co.
Gray Co., Inc.
Koch, Geo., Sons Inc.
Nordson Corp.
Paasche Air Brush Co.
Spee-Flo Co.

**PRESSURE CURTAIN COATERS**
Joyce Research & Development Corp.
Koch, Geo., Sons Inc.
Union Tool Corp.
Wilco Machine Works, Inc.

**PRINTERS**
Arco Co.
Hamant Tool Co., Inc.
Roto Finishing Systems
Schmutz Mfg. Co., Inc.
Union Tool Corp.

**ROLLER COATERS**
Black Bros. Co., Inc.
Dubois Machine Co.
Gasway Corp.
Joyce Research & Development Corp.
Roto Finishing Systems
Union Tool Corp.
Wallace & Co., L. R.


GIVE YOUR PRODUCTS THE BEAUTY THAT INSURES

"Sales Preference" with HANDSOME TWO-COLOR Wood Grain Finishes

hamant
GRAINING MACHINES

BRINGS THE POSSESSION OF BEAUTIFUL FINISHES WITHIN THE REACH OF MILLIONS

It is so easy to give your products true beauty that makes buyers turn for a second look—and then come back to buy! Handsome TWO-COLOR Wood Grains, as faithfully reproduced on the Hamant PROFITWIN Graining Machines, have all of the powerful "Sales Preference" of the actual woods. Production costs often are lower than for other less attractive finishes. Yet products with *simultaneous* TWO-COLOR graining always have a distinctive "worth-more" look that insures Sales Preference. Make sure YOUR products have the benefit of "Sales Preference."

FOR COMPLETE INFORMATION WRITE OR PHONE

**The HAMANT TOOL CO., Inc.**
502 Warren Street • BAldwin 4-4838 • Dayton 9, Ohio
IN CANADA: Cooper & Horton, Ltd. • Toronto, Ont.

### FINISHING SYSTEM ENGINEERING

American-Marietta Co.
Automation Equipment Co.
Binks Mfg. Co.
Despatch Oven Co.
DeVilbiss Co.
Fostoria Corp.
Gray Co., Inc.
Koch, Geo., Sons Inc.
Lilly Varnish Co.
Mahon Co., R. C.
Reliance Varnish Co., Inc.
Spra-Con Co.
Wolverine Finishes

### GROOVING AND TEXTURING MACHINES, PANEL

Multiscore Co., Inc.

### HEATERS, PAINT

DeVilbiss Co.
M & E Mfg. Co.
Nordson Corp.
Spee-Flo Co.

### HOSE AND CONNECTIONS

Binks Mfg. Co.
DeVilbiss Co.
Gray Co., Inc.
M & E Mfg. Co.
Paasche Air Brush Co.
Schrader's Son, A., Div. Scovill Mfg. Co., Inc.
Spee-Flo Co.
United States Rubber Co.

### HUMIDIFYING EQUIPMENT

Armstrong Machine Works
Bahnson Co.
Paasche Air Brush Co.

### MIXERS, PAINT

Binks Mfg. Co.
Gray Co., Inc.

### OVENS

**FORCED AIR**
Automation Equipment Co.
Despatch Oven Co.
Drying Systems Co.
Kirk & Blum Mfg. Co.
Koch, Geo., Sons Inc.
Lanly Co.
Mahon Co., R. C.
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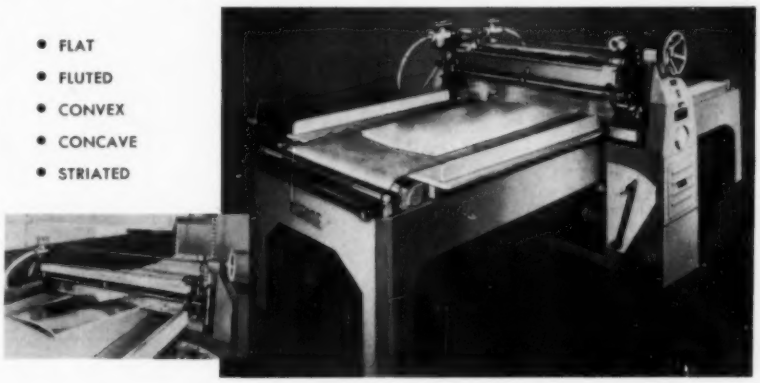

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PASSING INSPECTION—Production Manager Harry Back, Development Manager Ed Oeffinger, and Plant Manager Phil Adams inspect panel rolling along to application of first lacquer top coat. These men spent two years designing the plant. Key to its operation is its system of four-foot, motor-driven roller coaters. Replacing time-honored hand-spraying methods, these rollers apply toner filler and nitrocellulose lacquer top coats to each panel as it passes underneath on the conveying belt.


## LACQUER—STILL AS MODERN AS THE MOST PROGRESSIVE PRODUCTION LINE

Lacquer is the finish specified for pre-finished production at the United States Plywood Corporation's Orangeburg, S.C., plant. Development Manager Ed Oeffinger feels it is the best possible finish for wall paneling that's manufactured there. It gives greater clarity than other types of finishes and also greater scope in the colors and shadings that can be obtained on natural wood.

From a production standpoint, lacquer means shorter drying schedules and very easy and quick touch up, characteristics other finishes currently employed do not enjoy.

Because of a rollcoat system invented by United States Plywood, virtually every drop of lacquer that goes into Orangeburg finds its way onto the surface of a beautiful Weldwood panel and none is wasted.

Lacquer meets the rigid standards set up by United States Plywood and as Mr. Oeffinger points out, these panels are finished with the same type of lacquer as used by manufacturers of high grade furniture.

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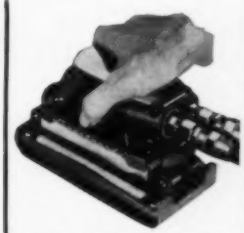

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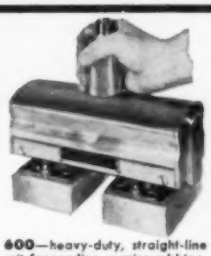

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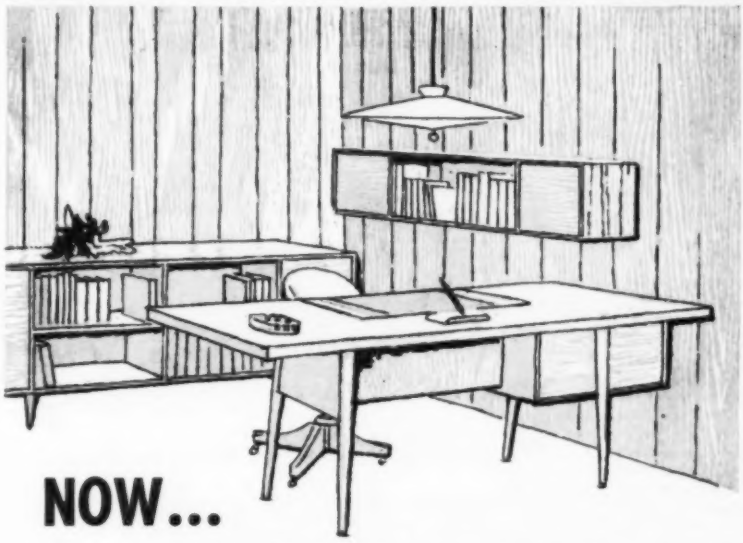

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Box 7446
Robbinsdale Sta.
Minneapolis 22, Minn.
Union Tool Corp.
800 North Detroit St.
Warsaw, Ind.
United Lacquer Mfg. Corp.
W. Elizabeth St.
Linden, N. J.
United Mineral & Chemical Corp.
16 Hudson St.
New York, N. Y.
United States Plywood Corp.
55 West 44th St.
New York City 36, N. Y.
United States Rubber Co.
1230 Ave. of the Americas
New York 20, N. Y.
United Wallpaper Inc.
1350 S. Kostner Ave.
Chicago 23, Ill.
Valvair Div.
454 Morgan Ave.
Akron, Ohio
Vickers Inc.
P.O. Box 302
Detroit 32, Mich.
Wadkin Ltd.
50 Howard St.
New York 13, N. Y.
L. R. Wallace & Co.
172 No. Vernon Ave.
Pasadena, Calif.
Westinghouse Electric Corp.
Mitarta Div.
Hampton, S. C.
Wheelabrator Corp.
1342 S. Byrkit St.
Mishawaka, Ind.
Wilco Machine Works, Inc.
Municipal Airport
Memphis, Tenn.
Wolverine Finishes Div., Rinshed-Mason Co.
Morganton, N. C.
Wood Mosaic Corp.
5000 Crittenden Dr.
Louisville, Ky.
Wysong & Miles Co.
625 Fulton St.
Greensboro, N. C.
Yates-American Machine Co.
729 Fourth St.
Beloit, Wisc.

**Thank You!**

**WOOD & WOOD PRODUCTS wishes to express its thanks to the above listed companies for their help on the Buyers' Guide.**

# FINISHING LITERATURE

**Flow Coater.** Joyce Research & Development Corp., Dept. WP, 42-42 11th St., Long Island City 1, N. Y. Folder presents Burkle Model LZ flow coater for applying various finishes on flat, curved, fluted and other surfaces of wood, plastic and metal. Also available is fact sheet describing Burkle Model BSL Universal belt sander for dry and wet sanding.

**Circle Item F45 in coupon Page 147.**

**Finishing Equipment.** George Koch Sons, Inc., Dept. WP, Evansville 4, Ind. Catalog entitled, "Standard Finishing Equipment Components," gives specification and performance data on line of industrial finishing products.

**Circle Item F46 in coupon Page 147.**

**Finishing.** Hercules Powder Co., Inc., Dept. WP, Wilmington 99, Del. Booklet entitled, "Wood Furniture Industry and Its Finishing Practices," presents results of 1957 market survey into wood furniture industry's use of finishes and finishing methods.

**Circle Item F47 in coupon Page 147.**

**Paint Finishing Systems.** Spray-Con Co., Dept. WP, 3600 Elston Ave., Chicago 18, Ill. Catalog provides basic technical information on finishing system engineering and illustrates equipment necessary. Also available is booklet entitled, "What is Flow Coating."

**Circle Item F48 in coupon Page 147.**

**Coated Abrasives.** Carborundum Co., Dept. WP, Niagara Falls, N. Y. Information kit includes brochures, buyer's guide, and selector charts on coated abrasives in wood and metalworking fields.

**Circle Item F49 in coupon Page 147.**

**Multi-Color Printing.** Hamant Tool Co., Inc., Dept. WP, 512 Warren St., Dayton 9, Ohio. Folder details multi-color printing in register of wood grain or other patterns with company's horizontal graining machines.

**Circle Item F50 in coupon Page 147.**

*"I don't care if you DO have a date right after work!"*

**Portable Spraying Equipment.** Campbell-Hausfeld Co., Dept. WP, Harrison, Ohio. Catalog CH-100 B describes and illustrates portable air compressors, paint spraying equipment and accessories.

**Circle Item F51 in coupon Page 147.**

**Finishing Process.** Satin Surfaces, Inc., Dept. WP, P. O. Box 1403, Louisville, Ky. Fact sheets describe Super Microseal finishing process, trademarked Super Satin Surface, which utilizes the lignin to seal wood's surface and stabilize the basic wood structure.

**Circle Item F52 in coupon Page 147.**

**Airless Spray Coating.** Nordson Corp., Dept. WP, Jackson St., Amherst, Ohio. Folder details airless spray coating process and its advantages. Includes answers to common questions on method.

**Circle Item F53 in coupon Page 147.**

**Belt Sanders.** Sherrill Machinery Co., Dept. WP, Troutman, N. C. Specification sheet describes B-24A Speed-Feed belt sander for high production operations.

**Circle Item F54 in coupon Page 147.**

**Roller Coaters, Grainers.** Dubois Machine Co., Dept. WP, Ferdinand, Ind. Folder presents roller coater series—Model TD top double, Model B single bottom, and Model DB double bottom—and Model P series graining machines for finishing panels and other flatwork up to 4 1/2 in. thick.

**Circle Item F55 in coupon Page 147.**

**Paint Spray Equipment.** DeVilbiss Co., Dept. WP, Toledo 1, Ohio. Fact sheets and folders describe industrial painting equipment including: Form F-286 on hot spray systems; Form IE-115-A on spray equipment for catalyst and additive materials; Catalog I-3501 on airless spray equipment; and Form 1-3601 on paint heaters.

**Circle Item F56 in coupon Page 147.**

**Belt Sander.** Timesaver Sanders, Dept. WP, P.O. Box 7446, Robbinsdale Sta., Minneapolis 22, Minn. Folder describes Model TOP Speedbelt sander available in 24, 38, 50 and 64 in. belt widths.

**Circle Item F57 in coupon Page 147.**

**Wood Finishes.** Arco Co., Dept. WP, Cleveland 27, Ohio. Bulletins describing various wood finishes include: Bulletin No. 137 on C-280 clear sanding sealer; Bulletin No. 140 on 509-41007 Arcozon dull gray trim lacquer for hardboard, plywood, etc.; Bulletin 141 on 53-40984 Arcozon flat light gray specialty lacquer; Bulletin No. 142 on 91-31581 translucent lacquer top coat; Bulletin No. 156 on 340-402 Q.D. prefab light gray spray primer; Bulletin No. 157 on 340-407

Q.D. prefab light gray shopcoat (dip-type); Bulletin No. 158 on 340-400 Q.D. prefab light gray roller coater primer; Bulletin No. 170 on LV-1941 clear wood sash dip sealer; and Bulletin No. 171 on 340-416 light-gray curtain coater shopcoat.

Circle Item F58 in coupon Page 147.

**Spray Equipment Selection.** Binks Mfg. Co., Dept. WP, 3122 Carroll Ave., Chicago, Ill. New 8-page spray equipment guide describes steps necessary to select correct equipment for specific job and relates selection to easy-to-use charts.

Circle Item F59 in coupon Page 147.

**Hot Spraying.** Spec-Flo Co., Dept. WP, 6614 Harrisburg Blvd., Houston 11, Tex. Revised edition of booklet "Why Hot Spray?" explains theory of process and features case history photographs and stories. Contains information on line of spray equipment including the Hydra-Airless unit which sprays without atomizing air.

Circle Item F60 in coupon Page 147.

**Polyester Film.** Goodyear Tire & Rubber Co., Dept. WP, 1210 Massillon Rd., Akron, Ohio. Brochure describes Videne A, a polyester film for surface laminating, applicable to interior paneling, table tops, counter tops, furniture, toys, etc.

Circle Item F61 in coupon Page 147.

**Stain Resistant Finishes.** Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Co., Dept. WP, Kingsport, Tenn. Folder describes butyrate furniture finishes—lacquer top coats based on company's film former, half-second butyrate, which resist yellowing and staining.

Circle Item F62 in coupon Page 147.

**Drum, Belt Sanders.** Ekstrom, Carlson & Co., Dept. WP, Rockford, Ill. Folders describe various sanders including: portable pneumatic drum touch-up series; Bulletin No. V200 on No. 123 variety and No. 23 scroll sanders; Bulletin E201 on oscillating and non-oscillating edge belt sanders; and Bulletin No. PD-3 on pneumatic drum sander.

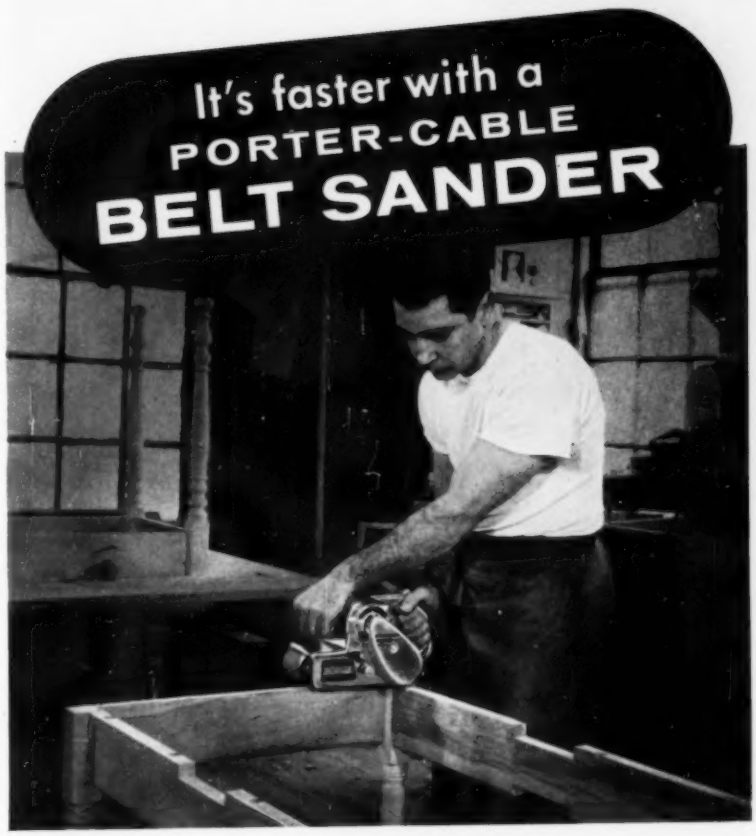
Circle Item F63 in coupon Page 147.

**Polyurethane Vehicles.** Spencer Kellogg & Sons, Inc., Dept. WP, Buffalo 5, N. Y. Fact sheets describe Spenkel series of polyurethane vehicles for wood finishes. Include F77, P93 and others applicable to marine varnish, redwood coating, floor varnish, etc.

Circle Item F64 in coupon Page 147.

**Two-Drum Sander.** Beach Mfg. Co., Dept. WP, Montrose, Pa. Folder describes and illustrates two-drum sander with aluminum drums. Also available is fold-out illustrating line of sawing and sanding equipment.

Circle Item F65 in coupon Page 147.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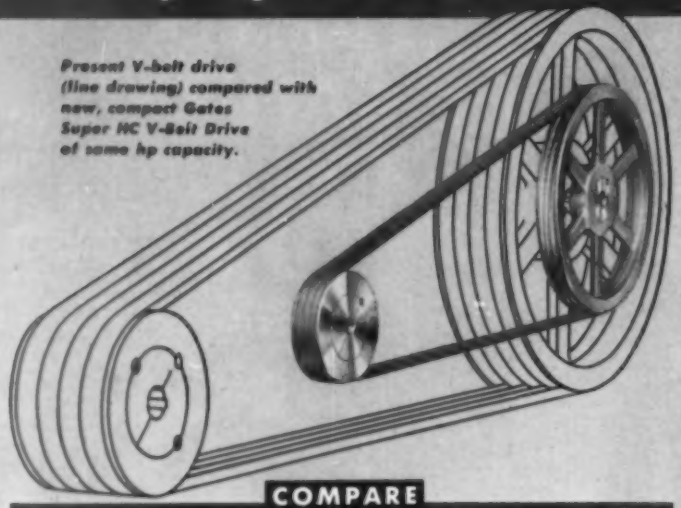


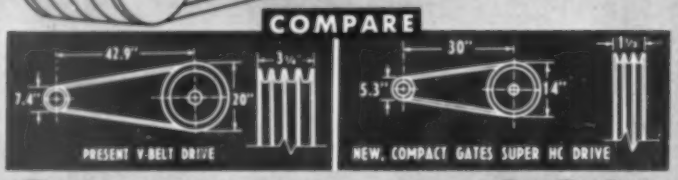


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**When you change the whole drive—both V-belts and sheaves—remember: The cost of a Gates Super HC V-Belt Drive is as much as 20% less than the cost of present V-belt drives of the same horsepower capacity.**

A development of Specialized Research in the world's largest V-belt laboratories at Gates, the new Super HC V-Belt makes possible the most compact, lightest-weight, lowest-cost multiple V-belt drive you can put on any machine!

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*"The Modern Way to Design Multiple V-Belt Drives"* is an informative handbook on the Super HC Drive, available from your nearby Gates Distributor listed in the Yellow Pages of your phone book.

**The Gates Rubber Co., Denver, Colorado**
**Gates Rubber of Canada Ltd., Brantford, Ont.**
*World's Largest Maker of V-Belts*

TPA 439

## Gates SUPER HC V-BELT Drives




these plans give one hour of additional pay for each hour of additional work produced. Delays beyond control of the operator are usually compensated for on a straight hourly basis.

In some group incentives and on conveyor lines where each individual does not have full control over the group output, a modified version of the Halsey 50/50 plan is used in which it takes two hours' difference in work produced to make one hour's difference in pay. This tends to level out the fluctuations in pay over a straight piecework or hour-for-hur plan. In fact, it cuts them right in half —of course, it cuts the monetary incentive to produce right in half at the same time.

Other plans, such as the 75/25 split in Bedaux, and the extreme incentive of the Taylor Differential Plan, where the employee could actually earn more than an hour of additional pay for an hour of additional work produced over a certain level, have pretty much faded from the picture.

In view of the high administrative cost of a wage incentive plan, the employee dissatisfaction that accompanies low earnings in times of reduced production, and the human problems inherent in changing standards for pay purposes where methods, ma-

### Profit Sharing, Wage Incentive and Piecework Plans

**The accompanying article is one of a series to be presented in these pages during the next few months. It is digested from a paper presented by Mr. Taylor at a panel session on the above closely related subjects sponsored by the Production and Cost Division of the Southern Furniture Mfrs. Assn.**

**It will be followed by discussions of profit-sharing plans by E. A. Powell, president, David M. Lea & Co., Richmond, Va., and C. P. Reinhardt, Drexel Furniture Co., Drexel, N. C. A paper on piecework plans by Jack Rochelle, vice-president, Globe Furniture Co., High Point, N. C., will round out the symposium.**

**The thoughts offered by the furniture executives will be helpful to management and operating men in other types of wood products establishments as well as to those in furniture and cabinet production who did not witness the personal presentations.**

**Readers who have had profitable experience with similar methods of rewarding workers for extra production are invited to submit details to round out the industry's knowledge of this vital problem. —The Editors**

chinery or work assignments are changed to obtain increased productivity, many plants around the country today are going to a system of measured day work.

In this approach, you do everything on a straight hour-for-hour plan as far as measuring work efficiency goes, but you just don't pay on it. The employees are paid a straight hourly rate. This, of course, removes the immediate financial incentive completely and puts the onus for production squarely in the supervisor's lap.

Naturally this takes a stronger type of supervisor than the other plans do, and even so, the individual productivity will probably not be as high as it would be with an actual wage incentive plan.

As to our own experience in Lane Co., we are using group incentives with a modified Halsey 50/50 plan in both our Altavista and Smyrna plants. But in our Rocky Mount plant, we are using the measured day work approach and have no plans at the present time to pay on time standards.

In the final analysis, measured time standards are the necessary tools of scientific management. Much of what can be accomplished with them can be done without actually paying a wage incentive. After that, paying a wage incentive is like gilding the lily. Wise management would make sure that it is ready, willing and able before it gilds.

**Moulding Pattern Chart.** A colorful moulding pattern chart, featuring the WP series western moulding patterns, has been published jointly by the Western Pine Assn., and the West Coast Lumbermen's Assn. The chart displays more than 200 standard moulding profiles and gives a use description for each moulding type. Copies are available, free of charge, from Western Pine Assn., 510 Yeon Bldg., Portland 4, Ore., or West Coast Lumbermen's Assn., 1410 S. W. Morrison St., Portland 5, Ore.

## WOODICTIONARY

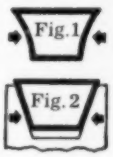
**HARDENER**

**A substance added to a paint, varnish, or the like to impart greater hardness to the film.**

# Improved Gates Vulco Rope gives you 2 important advantages

**1. 40% higher hp rating at no increase in price:** This important cost-saving advance is the result of Specialized Research in the world's largest belt-testing laboratories at Gates. **As replacements on standard drives these V-belts with 40% more load-carrying ability give longer service life... reduce down-time, cut belt replacement costs.**

**2. Concave Sides (U. S. Pat. 1813698):** The sides of Gates Belts are concave (Fig. 1). When the belt is bent around the sheave, the concave sides fill out—become straight—for full, uniform contact with the sides of the sheave groove (Fig. 2). Uniform contact insures maximum pulling power...even distribution of wear...longer life.




*Available in all sizes from your nearby Gates V-Belt Distributor listed in the Yellow Pages of your phone book.*

***When designing new drives***
use Gates new Super HC V-Belts and Sheaves.
See opposite page.

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***World's Largest Maker of V-Belts***

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TPA 432

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# Introducing the NEW KUPER Veneer Matching and Taping Machine

MODEL FZK-D
(Foreign & German Patents applied for)

## Features That Turn Lookers into Buyers

- New type joining and feeding mechanism provides better joints—joints that take finish.
- Tolerance adjusting mechanism guarantees satisfactory gluing of veneer sheets, even with variations in thickness.
- Only one operator required . . . machine breaks its own tape.
- Machine tightly joins fragile and buckled veneers, irrespective of thickness, without leaving slightest marks.
- Costs less to buy, less to operate, less to maintain.
- Applies either perforated or unperforated tape.
- Has greater capacity on thicker veneers.

### Over 3,100 European Installations in 2½ Years!

In only 2½ years, over 3,100 of the new Kuper Veneer Matching and Taping Machines have been installed and are proving their superiority in plants throughout Europe. Response in the United States from furniture, plywood and veneer manufacturers, following two weeks of demonstrations, has been most enthusiastic.

**You owe it to yourself to investigate the new Kuper machine.**

***Write, wire or phone for price and descriptive circular.***

Manufactured by

**HEINRICH KUPER**

Engineering Works
Rietberg/Westphalia, Germany

DISTRIBUTED IN U.S.A. BY

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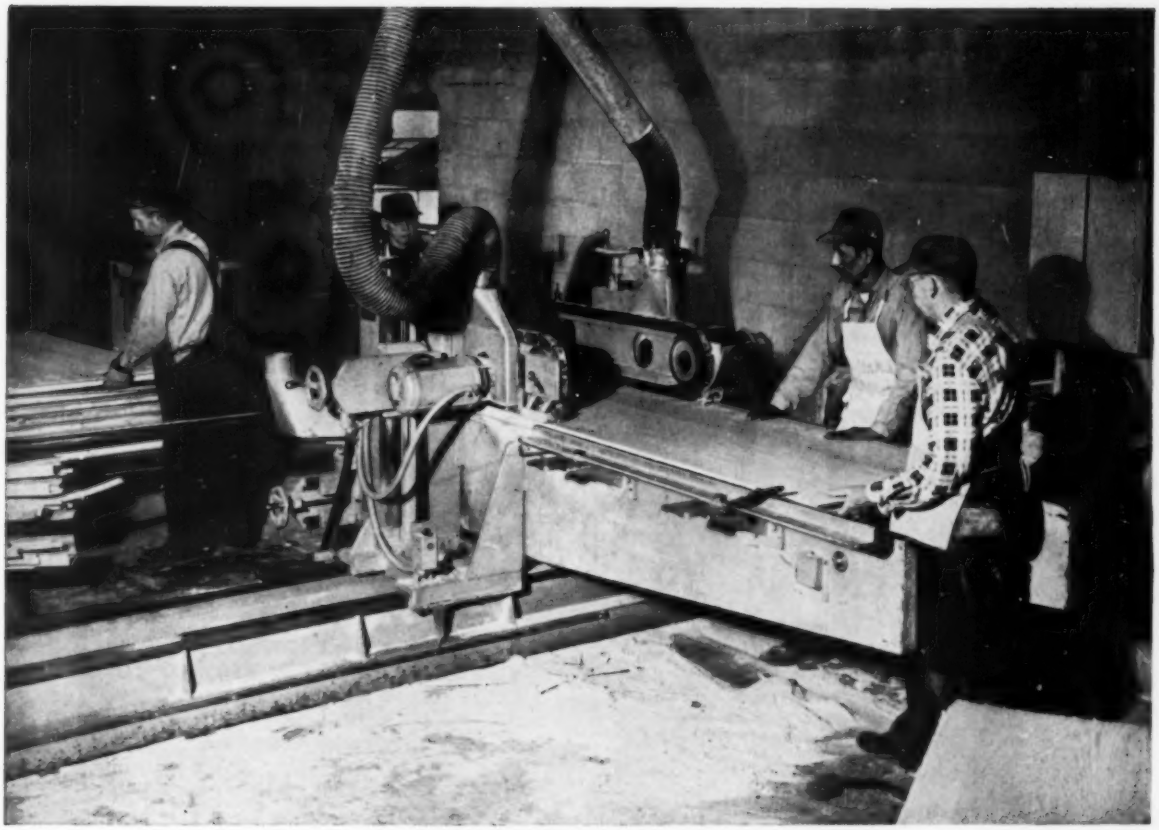

# Lakeland Door Company, Trims Doors and Operating Costs with a Mereen-Johnson No. 600 DOUBLE CUT-OFF SAW

**"We've realized big savings** since our Mereen-Johnson No. 600 Double Cut-Off Saw was installed three years ago," according to B. A. Kennen, Superintendent of Lakeland Door Co., St. Louis Park, Minn. "Our production capacity is up over previous sawing methods and we now produce over 600 laminated wood doors—trimmed both directions—in an eight hour shift. If necessary, we could produce up to 1,000 finished pieces in the same time and still keep within the required close tolerances."

**Quick set-up time** is a feature of Mereen-Johnson equipment as provided by a patented snap dog arrangement that allows fast adjustments to be made for varying size doors with a minimum of downtime. Since most of Lakeland's work is "custom-tailored" for individual home contractors, sizes may vary as frequently as every five to ten doors trimmed. This requires fast adjustments to maintain scheduled production. "In a normal shift we may trim as many as 20 different size doors."

**While the No. 600** is of medium size, it is well suited for this type of operation and it displays all the quality and workmanship of much larger units. The basic construction of the No. 600 is compact and allows for fast, easy adjustments. Maintenance is practically nothing!

**The No. 600** Double Cut-Off Saw is available with trims only—or with tilting cope motors and stationary dado arbor. Special attachments are available as optional equipment.

**MEREEN-JOHNSON MACHINE CO.**

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| CUT-OFF SAWS | DOUBLE CUT-OFF SAWS | MULTIPLE CUT-OFF SAWS | GANG RIP SAWS |
| TENONERS | VENEER & PLYWOOD SIZERS & JOINTERS | | RESAWS |

For Bulletin No. 600-700, inquire on your company letterhead.

**Particle Board**
*Continued from page 25*

solutely no movement at the joint lines of contrasting banding and panels. If stock and particle board moisture contents are properly controlled up to time of assembly, not as much as a hair-line break will show even on finished panels after years of use and exposure.

From results of several years' research and study, plus nearly two years of factory production and sales, I am certain that furniture panels produced in this manner will in time supplement most solid wood construction. Certainly it will be a step toward far better lumber utilization and more stable furniture. To assure this end result, a degree of moisture and humidity control must be exercised during fabrication.

### "Hard Shell" Construction

Particle board as core for plastic laminated faces has a wide variety of conditions to meet. Probably no one board will be "the best," nor can one board meet all situations and demands. We can say, however, that a hard shell suits particle board equally as well as it does a turtle!

First, it is safe now to assume that all plastic laminated furniture will be 3-ply. In fact, probably there will be much (too much) 2-ply construction because many particle boards are so stable that low-cost furniture producers have found that (for most months of the year at least) they can get by without a balance backing sheet. Some do put a coat of paint on the reverse side to psychologically match the 1/16 in. melamine surfaced face sheet.

Even the practice of better manufacturers has in instances gravitated to the point of merely using a thin .012 sheet of resin-saturated paper on the reserve side for balance. In many such instances a good coat of paint is just as effective a balance.

Another clever practice is to use a 1/8 in. thinner core and rebuild to normal top thickness with 1/8 in. hardboard for the backing sheet. In every such instance the writer has observed perfect flat tops. The reason, which may be sound, is that the overthick balancing back will overpower the continued cure and shrinkage of the melamine face sheet which normally on panels with thinner backing tends to pull and curl upward.

### Panel Requirements Vary

The varied panel requirements can be listed as follows:

*(A) A low-cost particle board smooth and dense enough to stand laminating pressure without surface telegraphing and with edges of fine material that may be painted with one or perhaps two coats and show a full-bodied finish.*

*(B) The same board may also be used with metal T-strip edge moulding. There is a wide demand for self-edging that is applied either with contact cement or through clamping in resistance or high-frequency heated clamps with a quick-setting resin adhesive.*

*Generally these panels are used on bases that develop some little strain on screws or joints. Metal fasteners with extra screws are many times used if necessary at critical points. Metal bases or frames are called on to relieve the load-bearing strains on panels or table tops. Top thickness is increased at times to well over the usual ¾ or 1 in., and here again the thicker particle board panels show up advantageously.*

Again, we must stress smoothness of particle board top surface, as telegraphing is easily detected where high-gloss melamine tops reflect the slightest irregularity.

*(C) Custom designed, large-scale pieces of furniture or built-in panel-*


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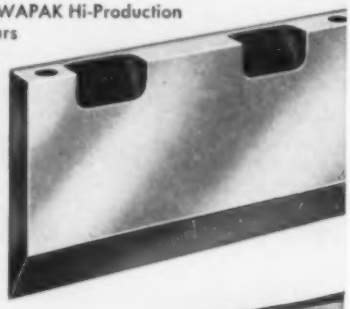

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*Knives Engineered for the Job Since 1891*
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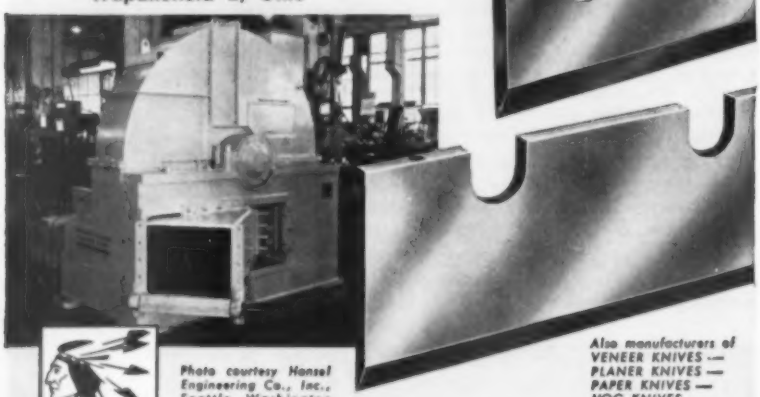

TRADE MARK

Photo courtesy Hansel Engineering Co., Inc., Seattle, Washington

*Also manufacturers of*
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*ed types (floor to ceiling) tend to work to advantage in laminating full sheet plastic faces to equally large particle board cores. Where cold stack pressing is done, core accuracy and close tolerance are musts. Side-slipping of expensive laminates can be a problem. Some recent adhesives, the aliphatic resin type, have a 'tacky' non-skid effect and can overcome the troublesome problem of side-slipping.*

*(D) Special moulded matching wood edge panels are quite desirable and get away from the square-edge look of any T-type moulding or self-edging. Usually this banding is of hardwood and is applied in widths of 1 to 2 in. (depending on contour of mould) to the particle board core before laminating. Accuracy and uniformity of moisture content at time of core banding are musts. There is no doubt that more and more of this specification will be used in the "higher key" architectural design trend in furniture today.*

**Particle Board Specialties**

Since the first "moulded sawdust" came into being many forward-looking furniture men with a leaning toward research and development have visioned making a complete piece of furniture, a table or chair, in a one-shot moulding operation.

Unfortunately, at least up to this writing, no material has as yet matched the strengh that lengthwise wood (and constructed joinings) dictate. In other words, no "horse" on the particle board team has come forward that can hold its own in this respect.

Many separate articles have been moulded in closed die moulds, in curved as well as flat shapes. All such specialty type particle board items have their own individual specifications. In most instances they require a close pore surface for an enamel finish, even to the point of surface particles approaching wood flour fineness, the core or inner layer or mass generally being coarser.

A relatively recent and successful development has been such a product carried a step further. By using a high percentage of resin and color with the wood flour outer surface a completely finished melamine-surfaced product is being produced in volume. Desk tops, chair seats and backs, writing desk tablet arms of various sizes and shapes are component parts of a most successful line of school furniture.

Still other variations of closed die moulded particle board products going into furniture are those made primarily for cores, with plastic surfaces of either vinyl, acetate or melamine applied in a separate operation over the coarse particles.

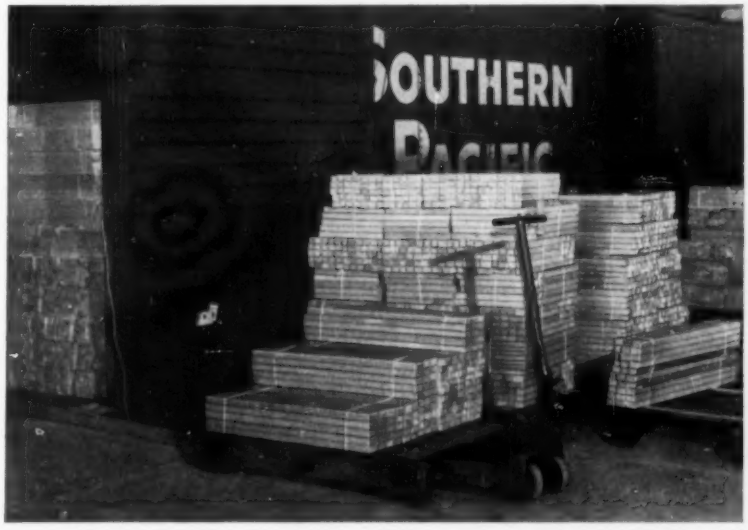
One of the more recent developments in such a product is again finding its end use as a school desk. This is a coarse particle board core with only the outer moulded edges containing the higher resin and fine particle (or wood flour) colored mix. It is surfaced with a melamine laminate and the edges are trimmed and buffed.

This core banding process economically performed in the same operation is something that could well be further developed and used in many cut-to-size panel requirements.

**Editor's Note**—*The foregoing article is adapted from a paper presented by the author at a recent meeting of the Forest Products Research Society at Ottawa, Canada.*

**WHERE TO BUY IT!**

**Wondering where to buy finishing supplies? Finishes? Conveyors? Equipment? Don't miss checking over the Wood Finishing Buyers' Guide, Page 96 in this issue, which details the finishing products available from more than 150 manufacturers!—The Editors.**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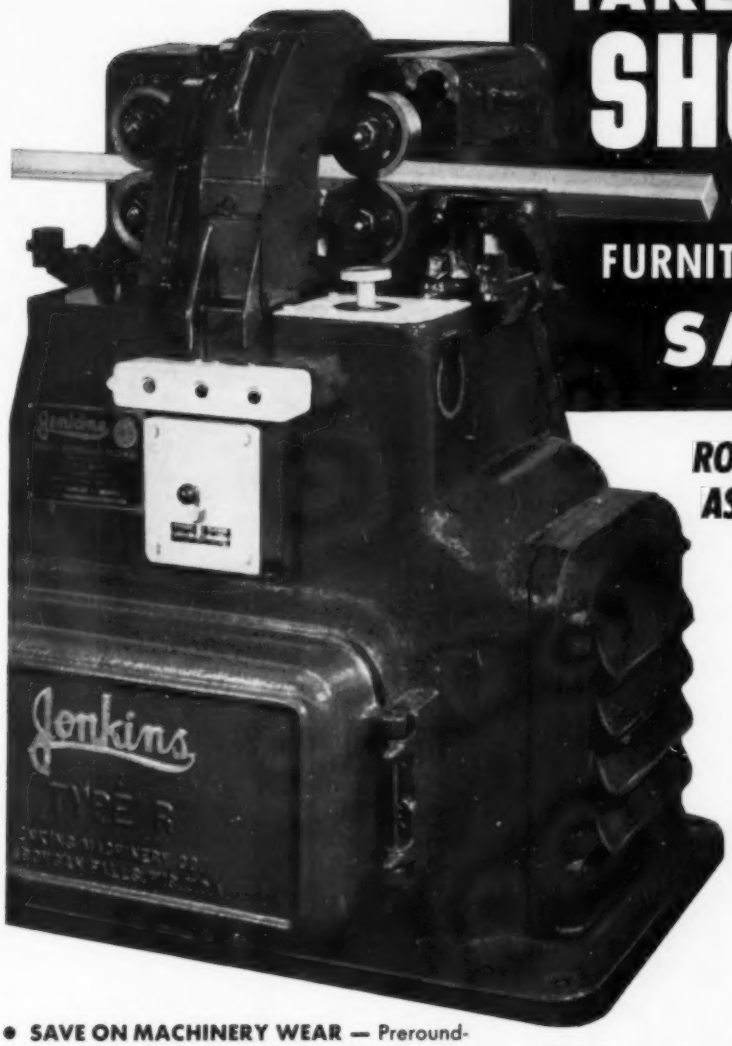


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**Jenkins Type "R" dowel rod machine does the job!**

*Faster, more uniform drying plus greater kiln space economies are reported by manufacturers who round stock before kilning — another example of how Jenkins leads the way to more efficient productions. Jenkins dowel rod machines, with adjustable heads, self-centering guides, multiple motor drives and speeds to 180' per min. produce more useable rounds faster. Add to this Jenkins' ability to withstand day-in, day-out production without need for nuisance adjustments and you will see why more and more manufacturers specify Jenkins.*

- **SAVE ON MACHINERY WEAR** — Prerounding eliminates lathe chatter, prevents kickouts and keeps cutting tools sharp longer. Adjustment and tool replacement shutdowns are minimized.
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*Send this coupon for your free copy of illustrated brochure on the Jenkins Type "R" Dowel Rod Machine — the standard of the industry.*

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**ENGINEERED AND BUILT BY KJ KOHLER-JOA CORP., SHEBOYGAN FALLS, WISCONSIN**

**Wood Research**
*Continued from Page 26*

causing an architectural revolution, preshaped structural and interior parts, veneers, finishes, particle board and molded wood products. I think of items like a kraft thermoplastic paper which may be used for instrument panels, car doors, and shoes.

All these remarkable products and processes come from research, and the direction of this research seems to be toward improving the product, developing standards, controlling quality, and introducing new products. Is it sufficient? Or could individual companies become more analytical in evaluating the possibilities of research for their own profit, and in using knowledge already available?

Another question occurs to me. Is there a direction to the research of the industry as a whole? It is not apparent that there is, to an outside view, although it is apparent that an industry-wide research direction can be phenomenally profitable. One need only look at the products from the associations of the aluminum people, the glass container, petroleum and petrochemical organizations. These research associations are at the heart of our robust competition. They are striving to be at the forefront. Many of these industries are now and will continue to devote research effort toward overcoming an obstacle which is not yours —namely, the future diminution of their present natural resources. The tree is a replenishable source, and wood products have already substituted for wartime materials in short supply. It is abundantly clear that a venturesome wood technology can give us economical and attractive products to replace those metal and other products which come from a limited resource.

I have heard several people say that the forest products industry is on the threshold of discovery, and that it is analogous to the petroleum industry several decades ago. By this analogy I think they mean that the full use of the raw material has not been achieved. For instance—prior to modern refining methods, the use of a crude oil from a given source was determined largely by its native composition. Today, catalytic conversion and the use of additives in modern cracking make a wide variety of crude oils into better than the best of earlier lubes. Furthermore, the exploitation of oil has led to a large petrochemicals industry. The utilization of the tree has not begun to reach this level.

Basically wood is used for saw-timber, veneer, fibrous raw material for such products as paper and regenerated cellulose. Although waste is recovered more and more for particle board and chemicals, we still use only about 40% of the tree substance in a mixed stand of trees. Although wood is a replenishable resource for organic chemicals we have, understandably, concentrated on isolating chemicals from pulping residues. This is becoming a profitable avenue of research. However, there is a yet bigger step coming.

Pulping residues are often less amenable to treatment than the native wood. What are we doing about the chemical use of the whole tree? There is evidence that this is going to happen. In the literature are reports of new methods being explored for the separation of bark and wood components—and one of the boldest of these methods, incidentally is Russian. Their dissolving of wood in tetralin could lead to physical or chemical fractionation. Countries rich in forested land but poor in coal and oil are beginning to see the advantages of chemically utilizing their trees. Here, and in Japan and Russia, Sweden and other countries the problem is attract-


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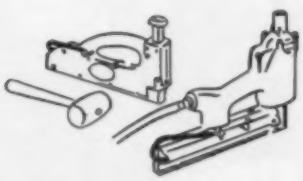

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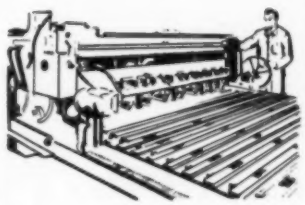
Labor Saving In Desk Manufacturing

Invisible Nailing of Boat deck

Use of Multiple Spotnailers on Millwork



Millwork . . . all jobs

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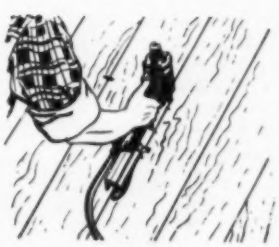


ing attention. A silvichemical industry has some advantages at the outset. In the petrochemical industry considerable trouble must be taken to add oxygen to the raw materials in order to form alcohol and other products. In many instances, a silvichemical industry, with its raw material rich in carbohydrates, has a much more attractive energy base for approaching the systhesis of related derivatives. In this direction we are seeing some work on the solvent extraction of lignin, a modest attack on hydrogenation, and some work on pre-treatment, the use of ultrasonics and irradiation. Right at this moment, however, silvichemicals offer a wide open field. Will the United States take the initiative, or do we have to wait for foreign competition to motivate our work? Here is a field, open on both boundaries of research, applied and basic, and a field in which the rewards for imagination will be bountiful—the two-thirds of the forest that we now throw away.

Taking a hard look into a crystal ball we can ask some more questions about tomorrow's possibilities. Let us suppose that we were starting out in the forest products industry from scratch, in an undeveloped country such as China, with forested land, and all of modern technology and knowledge accessible—but no commitments to equipment, procedures, roads, markets, or traditional expectations. What might be done? We could, at last, deal with the tree itself as an industrial raw material to be controlled for economic ends.

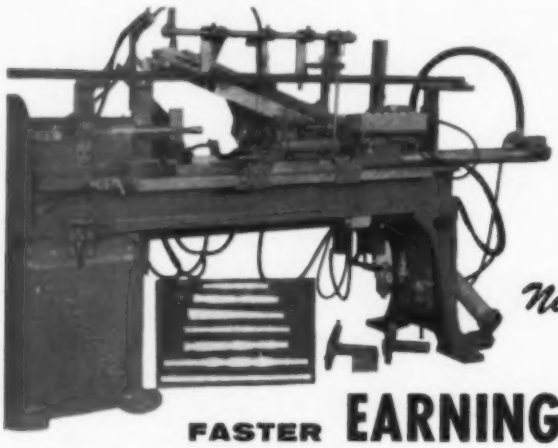
The latest and best automatic equipment for process quality control, and precise testing instruments would be one avenue of pursuit. Direct aerial seeding and repellents to predators would be helpful in using trees as a crop. Forest genetics would play an important part. Grafting techniques are, for example, giving us hope of producing a giant Douglas fir with desirable fibre characteristics.

In forest pathology we are already using anti-biotics and radioactive isotopes. Tracer elements are being used in growth studies, and soil research is giving us hope that we can grow trees faster. As an exercise in detachment, it may be fruitful to ask what could be done if one had free rein to use our present technology most efficiently. Even so, when one asks about the growth of trees, the effects and control of weather, and the chemical constitution of wood there is always a vast area of unknowns.

We have much to learn about trees. George Bernard Shaw once said that: "Except during the nine months before he draws his first breath, man never manages his affairs so well as a tree does." We must find out how the tree manages if we are to control it.

Now it is to your advantage to speed this process of discovery, and this can be done by supporting basic research in universities or foundations. Or you can have a direct impact by joining together and making an industrial investment in long-range problems. Co-operaitve support is clearly necessary, since basic work is laborious, venturesome and costly. Only in application does this fundamental knowledge enter the arena of competition, and this is one of the interesting paradoxes of our day.

Basic research forms the cornerstone on which all application, and therefore, profit rests. Companies, industries, and countries may compete for the ingenious applications and patents, but basic research is *not* competitive. To enhance basic research we must liberate ideas, and an exchange with the rest of the world is advantageous. It is a curious truth that we will heighten our own economic powers by applying the knowledge that we and our competitors have gained together.

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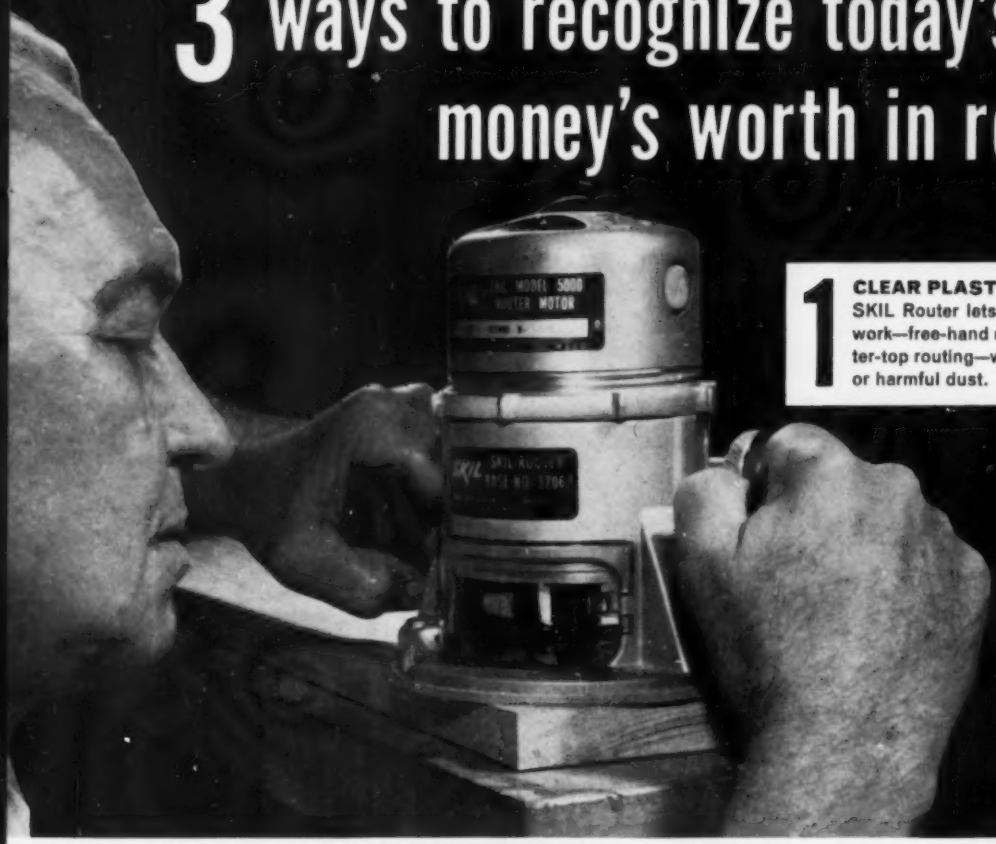
# 3 ways to recognize today's biggest money's worth in routers



**1** **CLEAR PLASTIC EYE SHIELD** on Model 297 SKIL Router lets workers do accurate, closeup work—free-hand routing, veneer trimming, counter-top routing—with no danger from flying chips or harmful dust.

2

3

**2** **NO FUMBLING FOR "ON-OFF" SWITCH.** Motor housing doesn't turn when a Model 297 Router is adjusted for depth. Recessed switch is always in the same location . . . an important safety plus!

**3** **BUILT-IN CHUCK LOCK** lets workers change bits faster and safer with just one wrench.

**Model 297 SKIL Router** has powerful ¾ hp motor, standard, 115 Volts (220 Volts at no extra cost). No-load speed, 23,000 r.p.m. Weighs just 5¾ pounds. Extra powerful 1¾ hp Model 299 SKIL Router also available.

**TWO WORK-SAVING ROUTER ACCESSORIES**

**Hinge-Butt Template Kit** saves 50% of door-hanging time. Eliminates measuring, figuring, layout work.

**Veneer and Laminate-Trimming Attachment** gives a clean, even edge quickly, accurately. Adjustable for both flush and bevel cutting with same bit.

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# LETTERS
## to the Editor

### Particle Board Screening

*Editor:* We have just completed reading your July issue and take considerable issue with certain comments in the article on Page 24, "Trouble Shooting in Particle Board Plants." There are comments relative to screening or classifying of wood flakes or chips in which the author indicates that screens become plugged by bark fiber and therefore require maintenance. We believe that Mr. Maxwell should have made a more complete check of types of screening equipment offered. We have never encountered any screening operation for wood flour, sawdust, wood chips, flakes or core material which caused blinding or plugging of the screen mesh regardless of mesh used.

Next, he maintains that dust is electrostatically held to larger particles and we must call to his attention that this has never been clearly established. In our experience the difficulty in removing the dust in a screening operation is either the result of the moisture content of the material, causing the dust to stick to the larger particles, or dust is literally cemented to larger particles by sap in green wood during the drying process. Another application for screening equipment which was overlooked in the article has to do with uniformity of chips to produce uniformity of board. This uniformity of chip is most effectively obtained by screening the material to size.

Mr. Maxwell has made a very thorough analysis of the various problems in a particle board plant. Unfortunately, however, the comments relative to screening equipment place us in a rather difficult position. We hope some form of rebuttal can be offered.
—V. L. Corbin, Sales Mgr., Orville Simpson Co., Cincinnati 23, Ohio.

### Sandwich Panels

*Editor:* We were given a copy of your magazine recently and found it most interesting. We are manufacturing a new office partition that is completely prefinished and cut to size at the factory. It uses the principle of hollow core panel construction. Any information that relates to their manufacture would be greatly appreciated.
—Clifford O. Ullevig, Alan Wall Co., Seattle 8, Wash.

### Lumber Purchasing Specs

*Editor:* In connection with our standardization program, we are interested in the preparation of standards as well as purchase specifications on the various grades of lumber and timber which we use. As chairman of our standardization committee, I would appreciate a list from you of the publications which, in your opinion, might be helpful in the preparation of such standards and specifications. Other than quality, size, etc., we are interested in phases of the transaction pertaining to contracts of sale, acceptance of lumber and the rights of the consignee as well as consignor.
—G. J. Exner, Wheeling Steel Corp., Wheeling, W. Va.

### Board Products Guide

*Editor:* Rather than tear out the Board Products Reference Guide, pages 100-103, from our June issue, which we would like to keep intact, will you please send us tear sheets of same?
—A. G. Harris, U. S. Wallboard Machinery Co., New York 4, N. Y.

### "Rollers on Wheels"

*Editor:* If available, please send us six or eight reprints of "Controlled Rollers on Wheels." This article concerns our company and appears in the August 1956 issue of your publication.
—N. L. Dills, David M. Lea & Co., Inc., Richmond, Va.

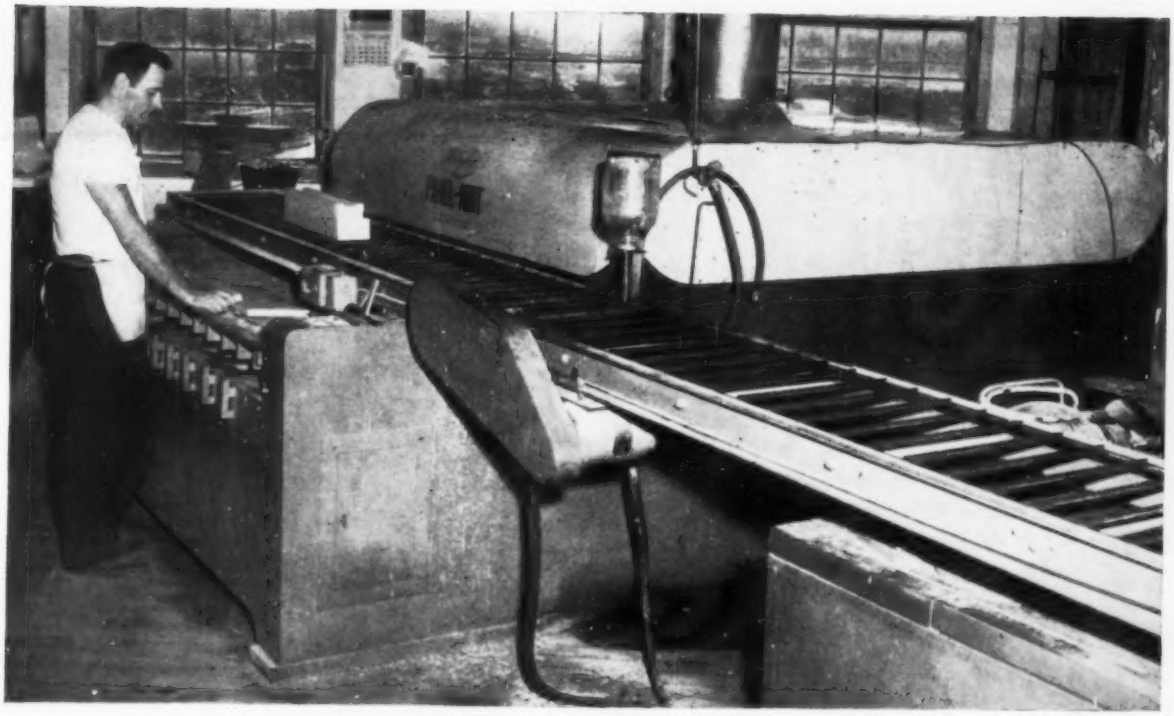
### Remedy for High Costs

*Editor:* A news article recently indicated that Senator Kennedy is pushing for a $1.25 minimum wage. Whether or not this bill is approved, it is indicative of the trend. In the not too distant future, this bill or another like it will substantially raise the floor under wages. This means that not only minimum wages up the line will be increased, thus further burdening the furniture industry with labor costs.

Since this is so clearly inevitable, I am always surprised to find manufacturers who feel that conveyorization cannot be fitted to their needs, for the simple reason that they have gotten along without it for many years. The industry as a whole is losing their share of the consumer dollar and surely one reason must be that the consumer fails to appreciate the value in the furniture offered. Could it be that excessive handling, lack of timing, lack of production control, etc., has raised the labor per unit to such an extent that its value is no longer apparent?

I feel that modernization of handling techniques and specialized machines which will reduce indirect labor is possibly the greatest challenge the manufacturing industry faces today.
—R. J. DeBurgh, Pres., DeBurgh Conveyors, Evansville 4, Ind.

# 1 MAN plus a *TAYLOR PANEL-MINT* = 4 MEN



Edge gluing Canadian Birch on the Taylor Panel-Mint at Conant Ball.

*Conant Ball of Templeton, Mass., Reports*

***BEFORE*** the Taylor Panel-Mint

1. . . . four men were required for edge gluing.
2. . . . the gluing department was a bottleneck.
3. . . . edgings and narrow pieces were scrap because uneconomical to glue.
4. . . . tongue and groove joints were used with lumber loss to each joint.

***AFTER*** the Taylor Panel Mint

1. . . . one man does all the edge gluing on the Panel-Mint.
2. . . . bottlenecks in the gluing department no longer exist.
3. . . . narrow pieces are now glued and the cull rate averages less than 1%.
4. . . . all joints are sawed instead of tongue and grooved, with no loss.

**Investigate and Save with a TAYLOR PANEL-MINT ***

*Reg. U. S. Pat. Off.

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116 PARKER AVENUE • • • POUGHKEEPSIE, NEW YORK

179-A-HS

# NEW HIGH SPEED DOWEL DRILLS

GREENLEE

## NEW DESIGN

High-speed steel dowel drills for higher production and accuracy in dowel pin construction. No. 179-A-HS has brad point with outlining spurs for cross grain and end grain boring. No. 178-A-HS has taper head for end grain boring. Easily resharpened.

178-A-HS

## NEW QUALITY

High-speed steel provides longer life . . . greater accuracy . . . drills in any kind of wood . . . really boosts production! Also available in tough, durable alloy steel. Write for complete data and sizes. Catalog 36-M.

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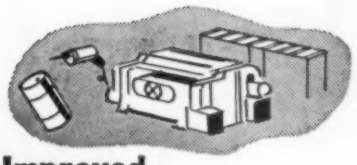
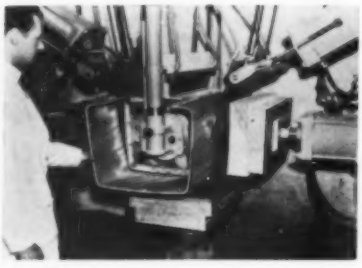
# PRODUCTS



## New and Improved



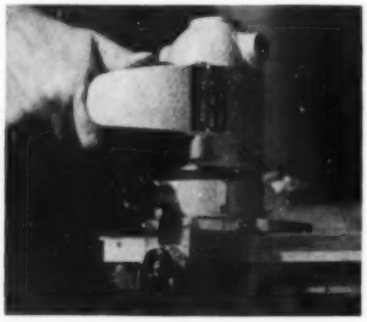
### Molding Press

MFR.: Schreiber System (U.S.A.), Ltd., Dept. WP, 60 E. 42nd St., New York 17, N. Y.

DESCRIPTION: New one-step molding press which produces wrap-around and preformed shells for use as radio and TV cabinets, luggage, modern furniture and parts, etc.

FEATURES: Veneers, cross-banded and spread with heat reactive synthetic resin glues, are placed in press assembly. Tension and electric current are then applied simultaneously. One side of current produces necessary heat to shaped core inside shell and other to band on outside of shell. Laminating, bending and setting takes less than two minutes. Shells are strong and rigid and never lose shape. Minimum bending radius is 5/8 in. Equipment produces sizes up to 42 x 42 x 24 in. Requires little space and is simple to operate. Operates on 60 amp line and requires minimum maintenance. If finished product is to be polished, good face veneers are required; if covered, lower grades suffice.

**Circle item P1 in coupon Page 147.**



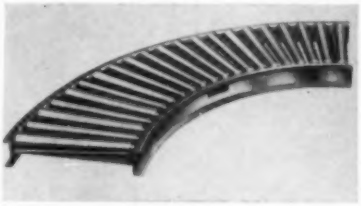
### Portable Plastics Router

MFR.: Import Tool Co., Dept. WP, 9520 Garfield Blvd., Cleveland 25, Ohio.

DESCRIPTION: Model RF30 Haffner portable router for high-speed, one-handed routing of plastic laminates.

FEATURES: Operates easily with one hand without special skill or training. Weighs 5½ lbs. Is self-balancing because of adjustable rectangular guide base which provides 30% more area on work surface. Micro-adjustable roller guide and shoe allow close tolerance trimming, said to eliminate hand finishing with files. Cutting tool is under constant visual control through unbreakable, clear plastic guard which deflects chips downward. Unit can be adjusted, while operating, to both square edge milling and simultaneous bevel, or contour milling of same edge. Standard ½ in. chuck takes all ½ in. domestic cutters. Tool rotates on direct drive from 110 volt, AC or DC electric motor at 20,000 r.p.m.

**Circle item P2 in coupon Page 147.**



### Curved Conveyor Sections

MFR.: Rapids-Standard Co., Inc., Dept. WP, 342 Rapistan Bldg., Grand Rapids 2, Mich.

DESCRIPTION: Tapered roller curve conveyor sections available in 45° or 90° angles.

FEATURES: Said to provide effective product alignment, with slippage practically eliminated. The 90° section consists of 21 rollers; the 45° section 11 rollers. Rollers constructed of 14 gauge seamless steel tapered tubing, 15 in. long with 1 5/8 in. diameter at small end and 2 1/2 in. diameter at large end. Bearing adaptor is pressed into large end of roller to permit use of same size bearing at both ends. Frame widths of both sections are 18 in. with 10 gauge formed steel channel. Rollers can be set in 3 1/2 in. frame with projection of 5/16 in. above frame, or in 4 in. frame with frame 1 3/16 in. above rollers.

**Circle item P3 in coupon Page 147.**

### Kitchen Cabinet Slide

MFR.: Grant Pulley & Hardware Corp., Dept. WP, 63 High St., West Nyack, N.Y.

DESCRIPTION: No. 337 drawer slide, a

ECCO

## Check these OUTSTANDING FEATURES

- Undercutting Principle for Rigidity and Safety
- Variable Speed Feeds are Infinite to Provide Correct Feed Speed for Material and Ability of Operator
- Adjustable and Removable Throat Insert of Soft Metal Eliminates Sliver Jams and Prevents Damage to Saw Blade
- Stiffening Collars Support Saw Blade up to Level of Feed Chain
- Eight-Roll Pressure Bar Assembly Adjusts Smoothly and Easily and Stock as Short as 4½" can Pass through Machine
- Counterbalanced Free Floating Feather-Touch Stock Gauge

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## BUT **EKSTROM, CARLSON** DID IT!

No one believed it possible to improve the design and operation of a Straight Line Chain Feed Glue Joint Rip Saw until the Ekstrom, Carlson Model E was introduced. But check the list to the left—these are just a few of the new exclusive features incorporated into this remarkable saw—features that give you definite advantages and benefits — there are many others. The dual chains control the stock on **both** sides of the blade. Chains **and** Races are interchangeable, arbor is accurate and vibrationless. That is why the Model E is the finest saw made and why it outperforms and outlasts all other saws.

***READ WHAT SATISFIED USERS SAY*** — Just don't take our word for it. Read actual letters received from plant managers and operators. See how enthusiastic they are. Get your copy of the 8-page Bulletin that clearly illustrates all these features, shows inherent safety, cut-away detail of all parts, advantages of the undercutting principle, cross-section of pressure roll housing, details of chains and chain drive, specifications, etc. Your copy is waiting, write today!

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1403 RAILROAD AVENUE • ROCKFORD, ILLINOIS

## A much longer cutting life for generated knives

You don't have to throw away part of the knife with Disston's Philbrick Generated Knife Type Head. This is true, because knives sit down in the head body so that they can be ground much further back. And they hold just as firm when worn as when new . . . maintaining their pattern for life. Disston's generated knives act as chip breakers, and protect the head bodies from wear. One set of head bodies can be used with different sets of knives for a variety of patterns. See your distributor for more detailed information. Ask him about Disston's full line of quality Planer, Veneer, and Chipper knives, also. Or, write to *Disston Division, H. K. Porter Company, Inc., 305 Tacony, Philadelphia 35, Pa. In Canada Box 530, Acton, Ont.*

**DISSTON PORTER DIVISION**

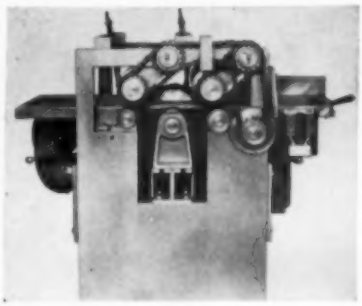
**H.K. PORTER COMPANY, INC.**

**PORTER SERVES INDUSTRY:** with Rubber and Friction Products—THERMOID DIVISION; Electrical Equipment—DELTA-STAR ELECTRIC DIVISION, NATIONAL ELECTRIC DIVISION; Specialty Alloys—RIVERSIDE-ALLOY METAL DIVISION; Refractories—REFRACTORIES DIVISION; Electric Furnace Steel—CONNORS STEEL DIVISION, VULCAN-KIDD STEEL DIVISION; Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION, H. K. PORTER COMPANY de MEXICO, S. A.; and in Canada, Refractories, "Disston" Tools, "Federal" Wires and Cables, "Nepcoduct" Systems—H. K. PORTER COMPANY (CANADA) LTD.

high-quality, low-cost slide designed especially for kitchen cabinets.

FEATURES: Available in standard lengths from 18 to 24 in. Easily and quickly mounted flush with back of drawer. Requires only 1/2 in. side space at each side. Has 30 lb. weight capacity, positive mechanical stop and quiet nylon wheels. Said to be ideal for mass production applications.

**Circle item P4 in coupon Page 147.**



### Heavy-Duty Ripsaw

MFR.: Mereen-Johnson Machine Co., Dept. WP, 4401 Lyndale Ave., N., Minneapolis, Minn.

DESCRIPTION: No. 444 heavy-duty ripsaw designed to handle even lightest work.

FEATURES: Has four driven rolls. Capable of ripping material varying in thickness from 1/4 to 2 1/2 in., including bundled veneers, through full range without resetting rolls. Large top rolls provide easy feeding. Feed mechanism actuated by separate motor drive. Improved driving mechanism permits efficient handling of material as short as 13 in. long in production line volume. Vertically adjusted arbor permits easy saw change. Model replaces No. 440V ripsaw in heavy-duty line.

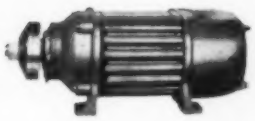
### Non-Flammable Adhesive

MFR.: U.S. Plywood Corp., Dept. WP, 55 W. 44th St., New York 36, N. Y.

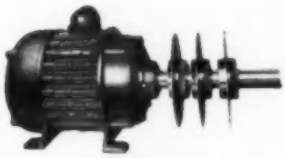
DESCRIPTION: Weldwood Super contact cement, a non-flammable, water base adhesive which bonds on contact.

FEATURES: Said to give two and a half times more coverage per gallon. Requires

*Serving the Industry Since 1852*



TYPE L ARBOR 1–30 H.P.
Flatted top or side for maximum cut.



TYPE G ARBOR 1–100 H.P.
Vertical or horizontal application.

TYPE K F ARBOR 1–15 H.P.
Ventilated.

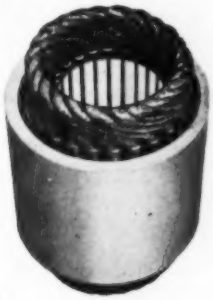
TYPE U ARBOR ½–10 H.P.
For vertical application.

# WOODS
## PRECISION MOTORS

SHAFTLESS MOTORS.
Furnishing direct drive to high speed spindles at relatively low cost. Available for nearly every class of direct built in application.

TYPE U ½–10 H.P.
With precision base and cutter head mounted.

FULL TAPE INSULATION
gives extra years of service.



Woods Motors, Motor Arbors and Shaftless Motors enjoy an International reputation for adaptability, flexibility and exceptionally long trouble-free years of service. A Woods Motor means Positive Power combined with lifetime economy for your industrial requirements.

WRITE TODAY FOR DESCRIPTIVE MATERIALS

MOTOR DIVISION

**S. A. WOODS MACHINE CO.**
27 DAMRELL STREET
**BOSTON 27, MASS.**

only single coat in bonding plastic laminates, plywood paneling, hardboard and other materials. Needs no clamping or pressing. May be brushed, sprayed or rolled on. Cleans off with soap and water.

**Circle item P5 in coupon Page 147.**

### Automatic Saw Grinders

MFR.: W. Von Arnauld Co., Dept. WP, 95 Grove St., Oakland, N. J.

DESCRIPTION: Vollmer line of automatic saw grinding machines for all kinds of wood cutting saws.

FEATURES: Three basic models—Junior, G 175 and S 175 (illustrated)—said to meet every need and budget. All units have gears running in oil bath, easy-to-read scales for depth and width adjustments, and are easy to operate. All handle circular saw blades up to 30 in. in diameter, planer knives up to 28 in. grinding length, and milling chains up to 2 in. wide. Grind almost any tooth form by changing cams which takes two minutes. Model Junior grinds bandsaw blades up to 1 1/2 in. wide; other models up to 5 in. wide, as well as handsaws up to 27 1/2 in. long. Model S 175, sold as floor model with dust extraction equipment, also capable of grinding alternate face bevels adjustable from 0° to 38°. Components interchangeable.

**Circle item P6 in coupon Page 147.**

### 26 in. Scroll Saw

MFR.: Yates - American Machine Co., Power Tool Div., Dept. WP, Beloit, Wis.

DESCRIPTION: Model J-226, a 26 in. scroll saw which can be used for saber work or bench filing by removing overhead arm.

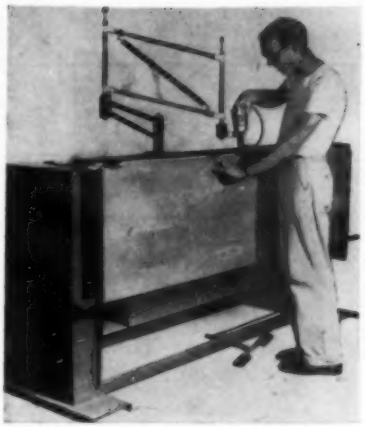
FEATURES: Has 2 in. depth capacity and full 26 in. throat. Has no die cast moving parts. Action is smooth.

**Circle item P7 in coupon Page 147.**

### Hardware Application Machine

MFR.: Turn - A - Bore Equipment Co., Dept. WP, 5916 E. Rosedale, Fort Worth, Tex.

DESCRIPTION: Hardware application machine for high production application of



hinges, lock and striker plate on doors.

FEATURES: Pre-mortised and drilled door is placed in machine where it is mechanically raised and held, hinge side up, on plane flush to jamb table. Operator activates power screw gun, suspended from balanced radial arm, to apply hinge to door and jamb. At touch of foot pedal, door is lowered and then turned so door lock edge is up. Door is again raised to attach lock hardware and striker plate to jamb. Total operating time is two minutes per door.

**Circle item P8 in coupon Page 147.**

### Casein Glue

MFR.: Wilhold Products Co., Div. of Acorn Adhesives Co., Inc., Dept. WP,


# *There are many marvelous MONTGOMERY products*

• BLO-HOG-Rugged construction, low maintenance, built-in fan, —any combination of scrap with uniform hoggings. Ask for bulletin 24B59.

**(NO CLINKER)**

• BURN-RITE INCINERATOR—Water-jacketed — compact — approved — no smoke, flyash, collector, conveyor. Ask for leaflet 15H59.

• BLOW-RITE SYSTEMS for conveying all materials in any quantity.

*All Montgomery products are guaranteed to do the job they are sold to do.*

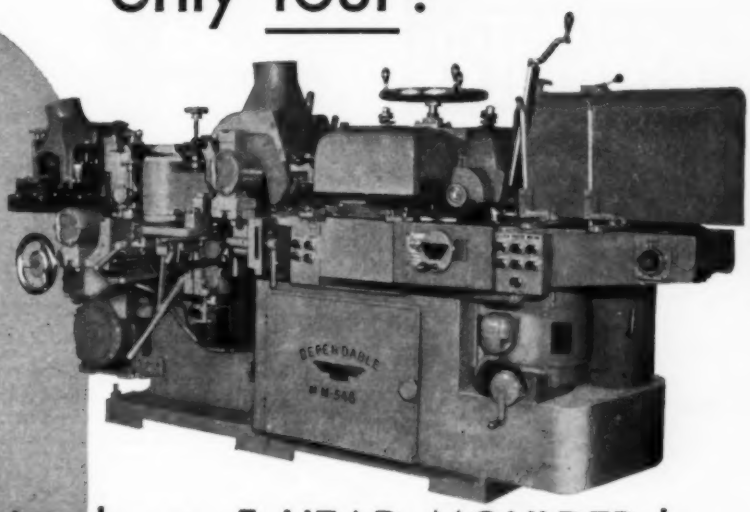
**JACKSONVILLE BLOW PIPE CO.**

P. O. Box 3687 Jacksonville, Florida ELgin 5-5671

QUALITY THROUGH EXPERIENCE • *Since 1925* • SOLVING DIFFICULT PROBLEMS FOR INDUSTRY

# 5 for accurate moulding...

# HEADS are better than only four!




## This is the sensational new 5 HEAD MOULDER by *Dependable*

Here's the accuracy, convenience, low initial cost and high production moulder you've dreamed about . . . and it has been proven in the field under full work load conditions!

Dependable's new Five Head Electro-Drive Master Moulders feature a fifth head, with a standard interchangeable cartridge unit, that is completely universal. It can be used as a second top head, second inside head, or as a tilting head with a range of from 0° to 90°. And, extra parts are not required to change from one position to another! The fifth head is used for sawing and very accurate mouldings since all four sides of the stock are machined prior to the fifth cut. The extremely short centers between the universal fifth head and the other heads result in accuracy not possible on similar equipment.

Dependable Master Moulders are available in four models: 4x4; 4x6; 4x8; and 4x10; with or without hopper feed. The fifth head is capable of a 6½" cutting circle and maximum knife projection of 1". But, this is only part of the story! For complete information, write today for Bulletin Nos. C-12 and C-12-A.

**Dependable**
**MACHINE COMPANY**
P. O. Box 839
GREENSBORO, NORTH CAROLINA

WOODWORKING MACHINERY MANUFACTURERS' ASSOCIATION WMMA

The complete DEPENDABLE line includes: Gang Rip Saws • Knife Balancers • Knife Jointers • Knife Grinders • Head Grinders • Saw Grinders Blower Fans • Cutter Heads • Moulders • Shapers • Knives • Surfacers • Hand Jointers • Multisection Presses

MISSISSIPPI

Investigate the factors which make Mississippi America's No. 1 state of industrial opportunity.

In Mississippi, industry quickly finds that the opportunities for good living match the opportunities for doing business. Let this unbeatable combination begin working to your advantage now.

For Further Information Contact
MISSISSIPPI AGRICULTURAL AND INDUSTRIAL BOARD
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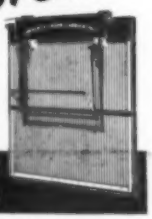
nothing else **BUT** kiln doors and carriers since "OUGHT FOUR"

"Universal" has built kiln closure equipment *exclusively*—since 1904. That's over 50 years of *specialized* manufacturing experience—of *proven* performance and dependability—of industry-wide acceptance and satisfaction. And that's *real* assurance of a wise investment. Be sure. Contact us *direct*—to be sure!

*Universal*



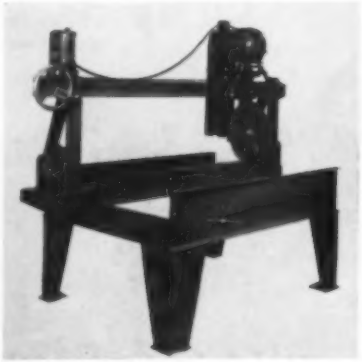
KILN DOORS and DOOR CARRIERS

Gaskets, Cement, and Rust Prevent. Coating

UNIVERSAL DOOR CARRIER, INC.
1117 Cornell, Indianapolis 2, Ind.


678 Clover St., Los Angeles 31, Calif.
DESCRIPTION: Wilhold casein glue, a high strength protein adhesive for laminating beams, table and counter tops, sash and doors, general assembly work.
FEATURES: Claimed to be ideal for bonding oily woods; also for gluing where joints are not perfectly fitted. Bonds are water and mold resistant. Mixes easily in cold water and can be used at low temperatures from above freezing to over 100° F. Available in 5 lb. cans and 50 lb. bags. Complies with federal specification MMM-A125.

**Circle item P9 in coupon Page 147.**



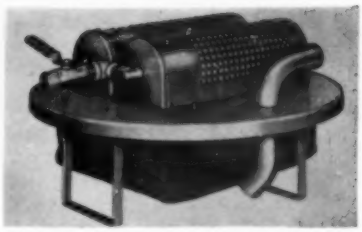
### Panel Saw

MFR.: Ty-Sa-Man Machine Co. Dept. WP, 1075 White Ave., Knoxville, Tenn.
DESCRIPTION: No. 155 panel saw for precision cutting of plywood, doors, hardboard and plastic laminates.
FEATURES: Operates on 5 h.p. motor. Traverses precision-machined rail, making accurate cuts to guaranteed tolerances of .004 in. in 60 in. travel. Available with hand or power feed and with variable cutting speeds of 3 to 17 f.p.m. Features choice of screw-type feed with hand operated 6 in. raise-and-lower movement, or endless chain feed with 8 in. hand operated raise-and-lower mechanism. Both hand and power feed saws available with arbor travel of 60, 96 or 120 in., and with 22 in. blade guard and automatic safety stops at each end of rail. Multi V-belt drive gives proper speeds for carbide blades and allows correct speeds for any type blade by simple pulley change. Standard saw guard easily adaptable for wet or dry cutting. Arbor is 1 in. in diameter and has 4 in. collars.

**Circle item P10 in coupon Page 147.**

### Air Powered Collector

MFR.: Vac-U-Max, Dept. WP, 1 Montgomery St., Belleville 9, N. J.
DESCRIPTION: Air powered Twin-Jet collector for rapid pickup or transfer of sawdust, wood chips, solvents, paints, etc.
FEATURES: Operates entirely by air. Incorporates two openings in parallel, doubling induced air flow through suction hose. Openings operate with 1/2 in. air line and hose, or 3/4 in. for long runs. Draws 280 c.f.m. air through suction hose. Velocity is 11,500 f.p.m. through



2 in. hose (3 in. hose also available). Unit fits any standard 55 gal. drum. Increased filter area is provided for handling increased air volume. Cleaned automatically by blowing back with no disassembly necessary. Higher velocity units, with 600 c.f.m. air flow, also available.

**Circle item P11 in coupon Page 147.**

### Adhesive Applicator

MFR.: Bostik Dept., B. B. Chemical Co., Dept. WP, 784 Memorial Dr., Cambridge, Mass.
DESCRIPTION: Bostik adhesive applicator designed for production work using solvent rubber adhesives.
FEATURES: Feeds through hose to brush where operator has finger-tip control over flow and shut-off. Has portable tank which operates on 20 lbs. air pressure. Pressure can be regulated to provide optimum adhesive flow for either thick or thin viscosity material. Each unit has multiple fittings to permit three operators to work from one tank. Various sizes of light-weight aluminum brushes can be interchanged. Operation said to increase production and eliminate waste and hazard of open containers.

**Circle item P12 in coupon Page 147.**

### 14 in. Variety Saw

MFR.: Delta Power Tool Div., Rockwell Mfg. Co., Dept. WP, 460 N. Lexington Ave., Pittsburgh 9, Pa.
DESCRIPTION: New 14 in. tilting arbor circular saw with heavy-duty capacity in wood and plastic operations.
FEATURES: Has 3 in. cut depth which enables operator to cut 3½ in. stock at 45° tilt. Other features include: extra heavy trunnions supporting entire saw carriage; jam-proof operation; four V-belt drive; blade guard with independently operating side pieces; 17 in. table

# *Here's how you can pocket net*
# PROFITS OF $146.15 A DAY
# *or more . . . with TURN•A•BORE*

**HARD TO BELIEVE?** Hundreds of woodworking concerns, large and small, all over the country are doing it! With a Turn•A•Bore shop, one man turns out a complete, precision-built door and jamb unit, ready to hang, *in less than 15 minutes.* That's 25 pre-assembled door units a day!

Based on national average figures, the cost of producing those 25 units is $325.10 — *including* material, labor, equipment amortization, space handling and utilities. The national average selling price of those 25 units: $471.25.

$471.25 less $325.10 leaves you $146.15 pure profit, every working day!

**BUT IS THERE A MARKET?** You bet and it's getting bigger all the time! The building business — already booming — is slated to grow to unprecedented size in the '60's, as the record-breaking jump in population during World War II matures to homebuying age. As the demand for low-cost quality housing rapidly rises, the market for pre-built components like the Turn•A•Bore door gets greater and greater.

**WHAT YOUR CUSTOMERS WANT — AND BUY!** Builders naturally choose door units that give *them* the most, at the best possible price. With Turn•A•Bore made doors, that's exactly what you have to offer. With Turn•A•Bore machinery you turn out door units that are interchangeable . . . fit any opening perfectly . . . are quickly and easily installed . . . eliminate "call backs" . . . and qualify for all types of home financing.

And because of Turn•A•Bore efficiency, you can sell *better* quality at a *lower* price. And still make *more* for yourself!

**HOW ABOUT OPERATING AND MAINTENANCE PROBLEMS?** A Turn•A•Bore shop is almost entirely automatic. It can be handled by an unskilled or semi-skilled worker. Your operators will be factory or shop trained —at no charge to you.

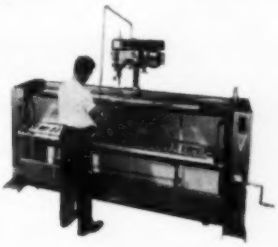
And Turn•A•Bore machinery is reliably inexpensive to maintain. It is time-tested, used and approved by leading woodworking concerns.

**IS A TURN•A•BORE shop hard to own? No! Here's the deal you get with Turn•A•Bore, *and nowhere else:***

- **The basic Turn•A•Bore shop costs only $6,000 to $9,000.**
- **You can buy a Turn•A•Bore shop for as little as $1,000 down, up to 36 months to pay. (Lease plan also available.)**
- **There are no strings attached; no "royalty" payments per door required. You owe Turn•A•Bore *nothing* beyond the purchase price of your equipment. And you're free to buy your own hardware from any manufacturer or supplier you wish.**

The Turn•A•Bore shop consists of:

1. SIZER—planes and bevels blank or lighted door to any width desired.



2. DOOR MACHINE — mortises for door hinge butt and jamb hinge butt; mortises and drills for striker plate; drills for lock mortises and drills for lock piston — all in 80 seconds!

3. CHOP SAW — mitres and splines both sides of door trim to smooth finish and perfect fit.

4. HYDRAULIC ASSEMBLY TABLE — clamps materials in place for fast assembly of door unit . . . then tilts into upright position for easy removal of the finished unit.

tab

**GET THE WHOLE STORY TODAY!**

## TURN•A•BORE
## EQUIPMENT COMPANY

P. O. Box 7072 — 5916 E. Rosedale
Fort Worth, Texas

Turn•A•Bore Equipment Company
Box 7072, 5916 E. Rosedale
Fort Worth, Texas

_____Send me complete literature about Turn•A•Bore shop equipment by return mail.

_____Have a Turn•A•Bore representative telephone me to arrange an appointment soon. (No cost or obligation.)

Name _____

Company _____

Address _____

City _____ State _____

Telephone Number _____

WWP

## from BABY BEDS . . . to BUTCHER BLOCKS!

**Take ANY letter from the alphabet . . .**

and you'll discover countless products in which MONITE glues play an inconspicuous but vital part. Continuous research and development are musts to serve such diversified industries.

Available to all is the knowledge gained by years of experience in the glue manufacturing field. Give your product a competitive plus—specify MONITE . . .

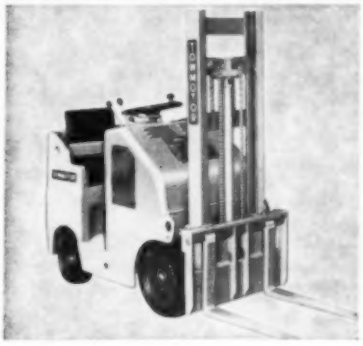
*the glue with strength to endure.*

MONITE WATERPROOF GLUE CO.

Monite Bldg. 1628 N. 2, Minneapolis 11, Minn., U.S.A.


space in front of blade and at maximum blade height; double T-slots which hold massive miter gauge securely even beyond table front; and 48 x 38¾ in. table.

**Circle item P13 in coupon Page 147.**



### Low Profile Lift Trucks

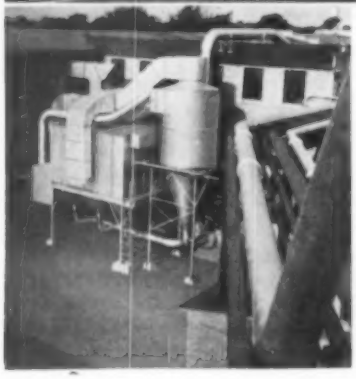
MFR.: Towmotor Corp., Dept. WP, 1226 E. 152nd St., Cleveland 10, Ohio.

DESCRIPTION: Van-Stack series of low profile lift trucks with specially designed mast to permit high stacking as well as easy access to low headroom areas.

FEATURES: Series consists of Model 410 with 2,000 lb. capacity, and Model 440 with 3,000 lb. capacity. Length of Model 410, less forks, is 5 ft. 10 in.; length of 440 is 6 ft. 2 in. Overall width of both units is 2 ft. 8 in. and minimum overall height with mast lowered 65 in. Maximum lift on two models ranges from 120 to 144 in. Free lift with standard

## DUST COLLECTING...
## FOR OVER THIRTY YEARS
**WE HAVE BEEN DOING THE COMPLETE JOB OF**
***ENGINEERING • MANUFACTURING • INSTALLING***

- **DUST COLLECTING SYSTEMS**
- **EXHAUST SYSTEMS**
- **WASTE HANDLING SYSTEMS**
- **PNEUMATIC MATERIALS HANDLING SYSTEMS**



**TOP:** Recently enlarged OBP system automatically proportions chips and dust in correct ratio, so that all waste can be safely burned as fuel.

**BOTTOM:** Cloth bag type unit collects dust and filters air. In winter, heated air is returned to plant to maintain heating economy, and dust is sent to the storage bin where it is mixed with chips from separate hogger line. Waste is then directed to furnace where it is used for fuel.

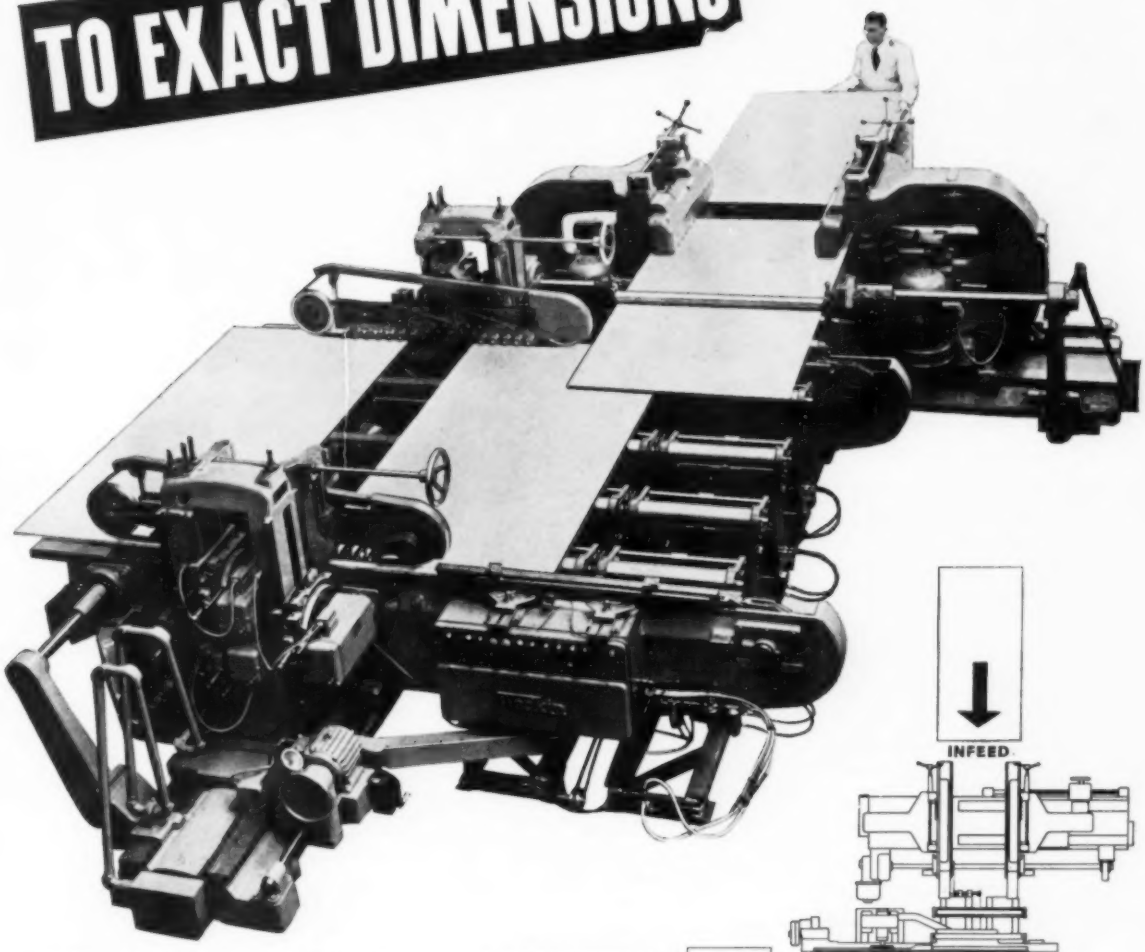
The skill which Ohio Blow Pipe has gained in planning, manufacturing and installing hundreds of pneumatic systems, is your assurance of the most efficient and economical job for your particular requirements.

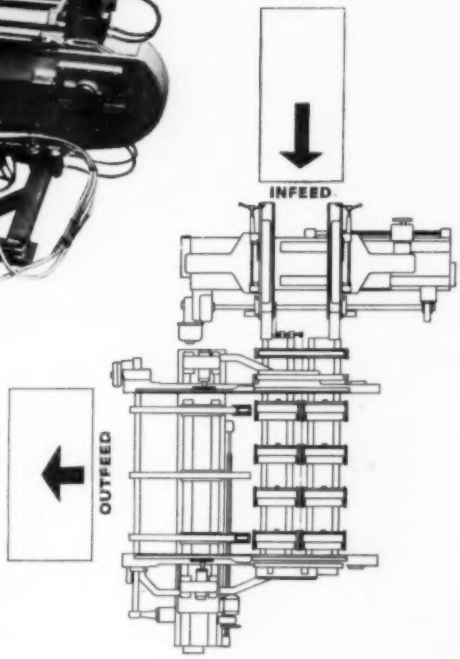
Ask an experienced OBP engineer to survey your requirements. You may be surprised at the cost savings that a critical analysis can discover.

**Ohio Blow Pipe Co.** 1719 DOAN AVENUE CLEVELAND 12, OHIO

*Continuous 4 sided panel sizing*

# TO EXACT DIMENSIONS






This four-sided trim saw is built to give you both PRODUCTION and PRECISION. Both infeed and outfeed sawing units are adjustable to deal with boards between 18 in. and 48 in. in width and 5 ft. 0 in. to 8 ft. 6 in. in length. Shorter lengths can be provided for by removing one or more sections of the transfer.

Infeed unit embodies automatic feed chains of the Straight Line Edger type for accurately feeding any type of board with clean or irregular edges. Outfeed unit has chain feed of the famous Wadkin Double End Tenoner type. Both units can be fitted with heads for edge grooving or moulding in addition to the saws.

Machines with automatic infeed and outfeed hoist can be supplied, also with a series of saws for producing multi-panels of any size from one board; also a range of hand or automatic single sawing machines for cross cutting and squaring boards, arranged for either manual or automatic operation.

**WADKIN LTD.**

**Wadkin**

**50-52 Howard Street, New York 13, N. Y.**
**Municipal Airport, Memphis 14, Tennessee**
**113 Richdale Avenue, Cambridge 40, Mass.**
**1300 South Soto St., Los Angeles 23, Calif.**
**U. S. Highway 64, P. O. Drawer 1558, Statesville, N. C.**

# WHAT'S YOUR WOOD PROBLEM?

## Having trouble with *late delivery* of wood parts?

At Gamble Brothers we work to keep shipping promises two ways: by having *adequate materials and facilities,* and by *properly scheduling* their use.

Of the three million board feet of lumber (all standard thicknesses, dozens of species) in our inventory, more than a million feet are kiln-dried and ready for use at any time. Your wood parts order goes into production without delay.

We've made a science of *proper allocation of machine work* and *control of detail* in order to keep 50 and more shipping promises each day. Too, we get a big boost from the all-direction truck and rail transportation available from our central location.

We're not perfect — but we like to consider our plant an extension of your own, and go *all-out* to help you make *your* delivery dates.

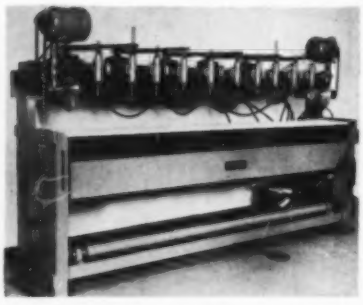
## Send for FREE booklet Illustrating GAMBLE services

This 28-page booklet describes Gamble facilities and services in detail. Includes many photographs of unusual products designed, tested and perfected by Gamble Brothers. Write for your copy today! Gamble Brothers, Inc., 4611 Allmond Avenue, Louisville 9, Ky.

**GAMBLE BROTHERS**
*Incorporated*
Louisville 9, Kentucky
*If the problem involves WOOD —GAMBLE can help!*


mast ranges from 13 1/2 to 25 1/2 in. Available as optional is Triple Lift Mast which provides up to 18 in. of free lift and excellent visibility with load lowered or elevated. Model 410 has lifting speed up to 90 f.p.m.; the 440 to 60 f.p.m. Standard forks are 30 in. for Model 410 and 36 in. for Model 440. Units are gasoline or LP-gas powered.

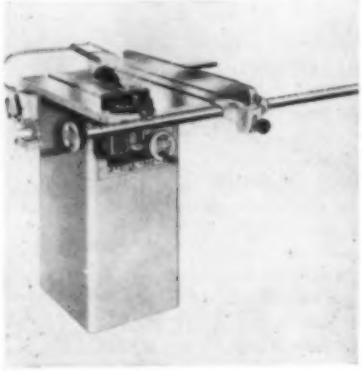
**Circle item P14 in coupon Page 147.**



### Multiple Spindle Borer

MFR.: Kramer Machine Co., Dept. WP, Lake City, Pa.
DESCRIPTION: Air-powered, 8 ft. multiple spindle boring machine added to Willard borer line.
FEATURES: Because of open back and end construction, work of any width or length and panels of any size can be drilled or bored in any location. Touch of either hand or foot control actuates one complete cycle. Cycle may be stopped, reversed and returned to loading position at any time by touch of same control. Stroke can be quickly and easily set for any length from 1 to 4 in. In addition, table height is fully adjustable to allow for different thicknesses and drill lengths. Available with any number of spindles in several types and sizes, all of which may be operated at various speeds to suit work, and with any power up to 1 h.p. per spindle.

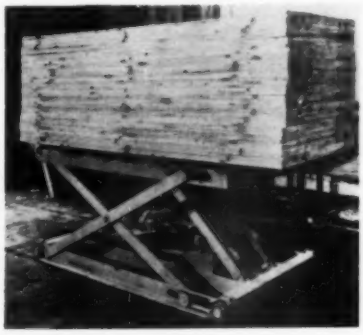
**Circle item P15 in coupon Page 147.**



### 10 in. Tilt Arbor Saw

MFR.: Boice-Crane Co., Dept. WP, 1369 Central Ave., Toledo 6, Ohio.
DESCRIPTION: Low-priced Challenger 10 in. tilt arbor saw added to line.
FEATURES: Full-floating, frictionless, rolling motor drive powered by standard motors delivers all power to blade. Constant belt tension reduces vibration and belt distortion to minimum. Also equipped with improved, trouble-proof ripping gauge and auto-positive clamping, said to maintain split-hair accuracy. Entire under carriage is oversize and engineered for added strength.

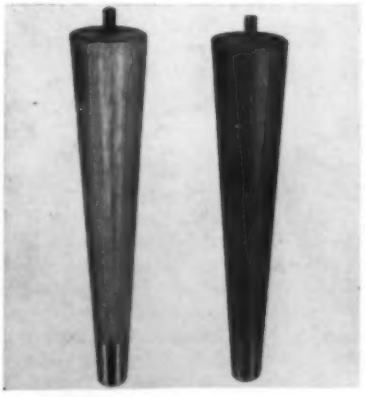
**Circle item P16 in coupon Page 147.**



### Hydraulic Lift Table

MFR.: United Products Co., Div. of Meridan Corp., Dept. WP, 3001 N. Starr St., Tacoma 2, Wash.
DESCRIPTION: Self-contained hydraulic lift table, called Upco, for plywood and other material handling operations.
FEATURES: Is 40 in. wide, 76 in. long and 9 in. deep, with lifting height of 43 in. Will carry 5,000 lbs. Controlled by 3-way electric solenoid switch with foot or button control. Lift speed is 2 in. per second. Lifting made at center of table load eliminating stress on crossarms. Available in portable units, wheel-mounted if desired, and with roller, flat or concave table tops. Has rugged, all-steel construction. Adaptable for automation.

**Circle item P17 in coupon Page 147.**

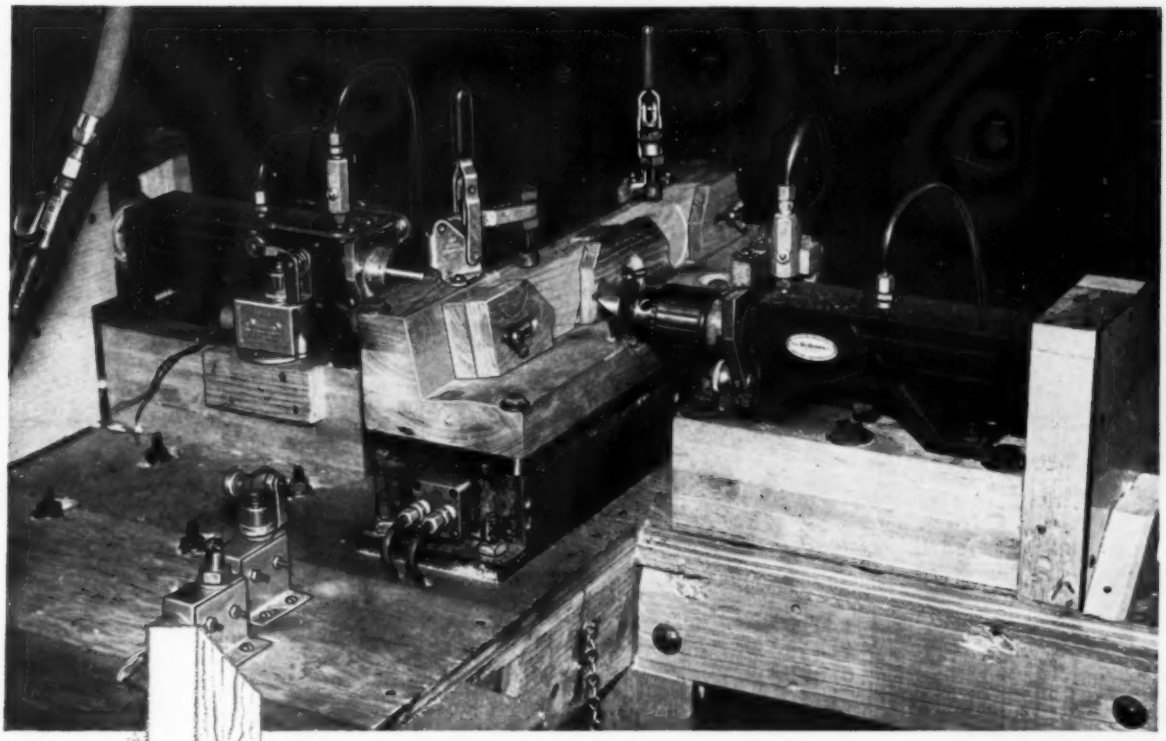


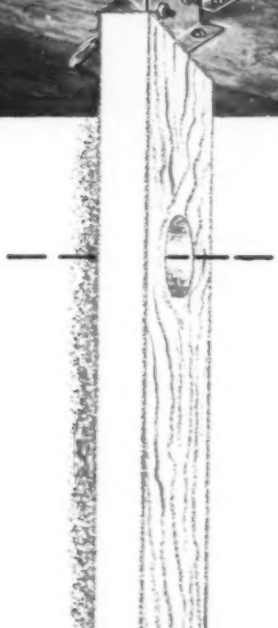
### Furniture Legs

MFR.: Stanley-Judd, Div. Stanley Works, Dept. WP, Wallingford, Conn.
DESCRIPTION: Line of screw-on hardwood furniture legs with solid brass ferrules.
FEATURES: Available in four finishes—natural (unfinished), mahogany, walnut and ebony. Packaged, four to a box, in 4, 6, 8, 12, 16, 20, 24 and 28 in. lengths. Easily applied.

**Circle item P18 in coupon Page 147.**

# Bellows "SPOT-A-MATION" Triples Production In Drilling 2" Dia. Holes In Hardwood





Automatic machinery doesn't have to be expensive. Less than $500.00 was required to build this drilling unit—and it paid for itself in five months.

The job was to drill and counter bore two 2" holes in a piece of hardwood used for leg sockets on an end table. Two Bellows-Locke 22A Drill Heads and a Bellows two-position Transfeed Table, with necessary switches, make up the unit. Two fixtures are mounted on the table. The operator loads a fixture, touches a button and the drills advance. While the drilling operation is going the operator loads the second fixture. The drills retract, the Transfeed Table shifts position and the cycle repeats.

This simple application increased production from 200 parts per hour to 600 parts per hour. It is typical of the many ways in which furniture manufacturers are using versatile Bellows "Controlled-Air-Power" Devices to cut costs in a wide range of woodworking operations.

Would you like a Wiring Diagram of this application? We'll be happy to send you full details of this drilling operation together with our bulletin "Controlled-Air-Power" in woodworking. Write Dept. WP-959, The Bellows Company, Akron 9, Ohio for File No. 2.1-24.

**The Bellows Co.**

DIVISION OF INTERNATIONAL BASIC ECONOMY CORPORATION (IBEC)

**AKRON 9, OHIO**

1498-B

OTHER INDUSTRIAL DIVISIONS OF IBEC: Sinclair-Collins Valve Co., Valvair, Akron, Ohio • V. D. Anderson Co., Cleveland, Ohio

# LITERATURE

## Catalogs • Bulletins • Brochures

**Conveyor Drive.** Dodge Mfg. Corp., Dept. WP, Mishawaka, Ind. Bulletin A667C describes compact screw conveyor drive complete with speed reducer, packing gland and drive shaft, all of which mount as unit on trough end.

**Circle item L1 in coupon Page 147.**

**Truck Operator Manual.** Automatic Transportation Co., Dept. WP, 149 W. 87th St., Chicago, Ill. Instructor's manual for industrial truck operators includes theory of operation, good driving practices, construction details of principal truck types, practical truck operation, and demonstration and written examination for driver trainee. Illustrated.

**Circle item L2 in coupon Page 147.**

**Portable Power Tools.** Skil Corp., Dept. WP, 5033 Elston Ave., Chicago 30, Ill. New 1959 catalog describes and gives specifications for complete line of production and maintenance power tools, including saws, sanders, routers, grinders drills, etc.

**Circle item L3 in coupon Page 147.**

**Veneer, Clipper Knives.** Simonds Worden White Co., Dept. WP, 1101 Negley Pl., Dayton 7, Ohio. Folder describes characteristics and advantages of Mirro-Keen finished veneer knives, clipper knives and pressure bars.

**Circle item L4 in coupon Page 147.**

**Dust Collectors.** Torit Mfg. Co., Dept. WP (KP-1), Walnut & Exchange Sts., St. Paul, Minn. Information sheets describe how one or combination of company's eight cyclone separators can protect machinery investment, product quality, etc., in wide range of applications. Also available are information sheets cabinet model collectors.

**Circle item L5 in coupon Page 147.**

**24-Page Gluing Booket.** A 5-page Wood Glue Reference Guide, listing some 184 glues available from 26 firms, and the latest developments, trends and futures in the wood gluing and laminating fields are presented in new 24-page booklet, "Progress Report on Wood Gluing and Laminating." Available at $1.00 a copy or at quantity discounts from WOOD & WOOD PRODUCTS, 59 E. Monroe St., Chicago 3, Ill.

**20 in. Bandsaw.** Delta Power Tool Div., Rockwell Mfg. Co., Dept. WP, 462 N. Lexington Ave., Pittsburgh 8, Pa. Illustrated bulletin presents new 20 in. wood-metal cutting bandsaw.

**Circle item L6 in coupon Page 147.**

**Dry Kiln.** Howard-Cooper Corp., Dept. WP, P. O. Box 3704, Portland, Ore. Folder presents Diamond Dry Kiln, a low-cost prefabricated kiln which operates on a continuous flow process.

**Circle item L7 in coupon Page 147.**

**Circular Saw Grinder.** Oliver Instrument Co., Dept. WP, Adrian, Mich. Fact sheet describes Ace tool and cutter grinder as adapted for grinding of tungsten carbide tipped circular saws.

**Circle item L8 in coupon Page 147.**

**Profits With Wood Waste.** Practical help for lumber or wood product manufacturers with mill residue or plant waste to convert into salable products for plus profits is contained in big 32-page booklet entitled "How to Make Money Out of Wood Waste." Includes 13 articles and 92 illustrations plus charts and data. Available from WOOD & WOOD PRODUCTS, 59 E. Monroe St., Chicago 3, Ill., at $1.00 per copy or at quantity discounts.


Every day throughout the logging season nearly 120 cars of "Gold Medal" logs like these roll into the Pickering Mills

GOLD MEDAL

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*—your best buy for*

- ☑ Factory lumber
- ☑ Cut stock
- ☑ Box shook
- ☑ Pattern lumber
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**Sugar Pine**
**Ponderosa Pine**
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**Incense Cedar**

Other factory users of lumber know from experience the satisfaction of dealing with Pickering—of using Pickering "Gold Medal" soft-textured, clean, smooth-cutting lumber in their products.

Whatever you make—cabinets, doors, millwork, prefabricated houses, boxes, patterns, pencils or what—you'll find Pickering conversant with your lumber needs. Pickering products are dependable. Pickering service is prompt and reliable.

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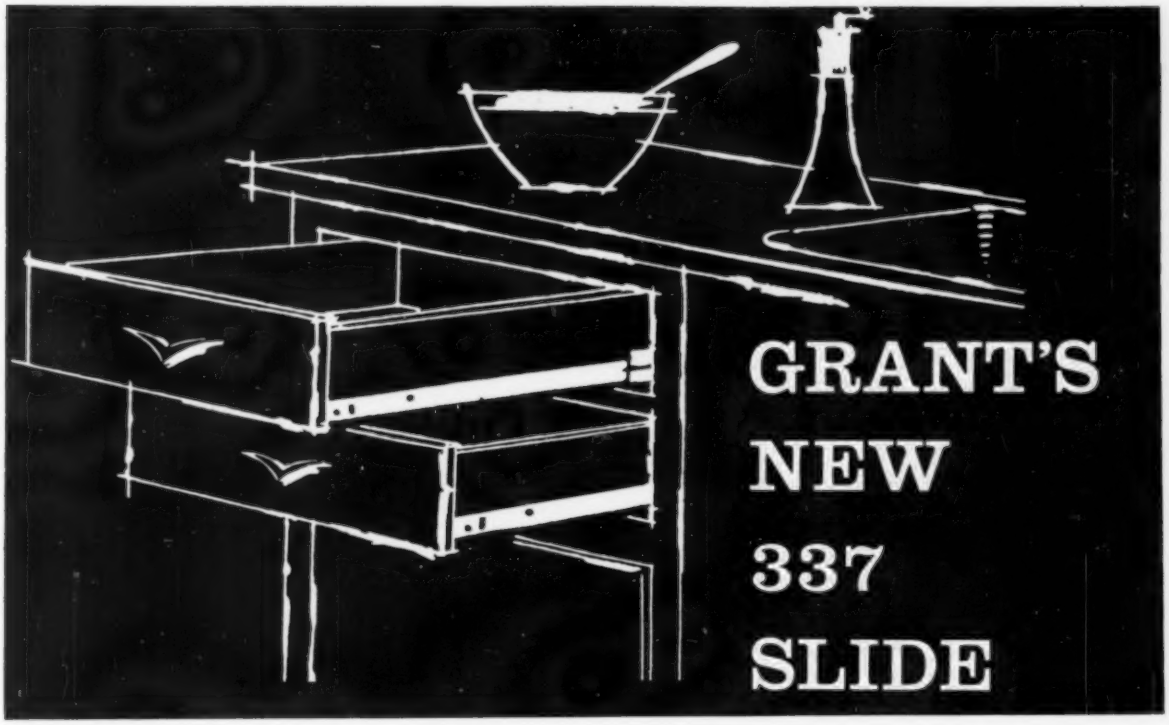
Tuolumne WA 8-4213

Lumber Corporation



# GRANT'S NEW 337 SLIDE

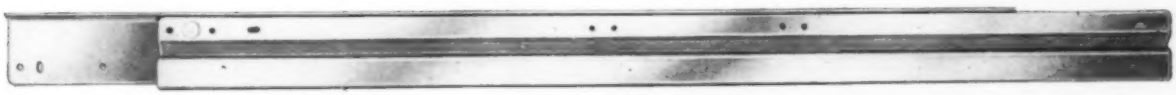
Cabinet Manufacturers throughout the nation have turned to Grant's new 337 Slide with the most enthusiastic response ever given a new slide.

And no wonder!

Now, *in one slide*, kitchen cabinet manufacturers find all of the important features they have been waiting for. High quality, and low cost/ Fast, easy installation/ Positive mechanical stop/ Simple drawer removal and insertion/ Only ½" side space/ Supports loads up to 30 lbs./ Individual packaging or available in 50 pr. production packages/

The 337 can be your answer too – why not write for additional data?

**IS THE NEW STANDARD FOR ALL KITCHEN CABINET DRAWERS!**



*GRANT PULLEY AND HARDWARE CORPORATION*

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# NAMES AND EVENTS

## Industry Groups • Suppliers • Personnel

### Locke Succeeds Hall at Forest Products Lab

DR. J. ALFRED HALL has retired as director of the U. S. Forest Products Laboratory, Madison, Wis., and has been succeeded by Dr. Edward G. Locke, chief of the laboratory's division of wood chemistry for the past eight years.

Dr. Hall gave as his principal reason for giving up his post the fact that the laboratory is in better position, financially and otherwise, than it has been in some years.

"We have some competent younger men here," he said, "who I am sure will take over capably. I look forward to watching the laboratory grow to even greater stature in the years to come. There are both great opportunities and great needs for its continued work on an expanded scale."

Dr. Hall retires as only the fifth director in the nearly half century that the laboratory has been in existence. He began his forest service career in 1930

Dr. J. A. Hall

Dr. E. G. Locke

as a biochemist on the laboratory staff. In 1937 he was appointed assistant director of the California (now Pacific Southwest) Forest Experiment Station at Berkeley. Since then he has been director of the Central States Forest Experiment Station at Columbus, Ohio, specialist on research problems with the Forest Service headquarters staff at Washington, D. C., during the war and, for six years before returning to the laboratory as director, served as director of the Pacific Northwest Forest Experiment Station in Portland, Ore.

His directorship was highlighted by his participation in a presidential commission task group in 1957 that recommended greatly increased research on wood to utilize effectively much low-quality timber, as well as industrial wastes. The commission report, including the task force's recommendations, has been submitted to Congress.

Dr. Hall will take up residence in Portland where he will do consulting work for industrial concerns in the forest products field.

Dr. Locke is a native of Portland, Ore. He served in several capacities, including assistant professor of chemical engineering at Oregon State College, before joining the Forest Service in 1944. Since coming to the laboratory, he has supervised a broadly expanded program of research on production of industrial chemicals for low-grade wood and harvesting and milling residues.

He is a past president of the Forest Products Research Society.

## INDUSTRY NEWS

**F.P.R.S. Section Meetings.** Forthcoming meetings of various Forest Products Research Society sections include the Mid-South section's 11th annual meeting scheduled for October 11-13 at the


"There's Nothing Like Wood"

LIVE, WORK, BUILD BETTER WITH WOOD

SUGAR PINE
PONDEROSA PINE
DOUGLAS FIR
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CALIFORNIA INCENSE CEDAR

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*We have vast forest resources, modern mills, kilns and facilities—plus men who know Lumber*

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A mixed car can contain Standard Items plus mouldings, interior trim, glued panels

*Specialists in Finger Jointing*

The Ralph L. SMITH Lumber Company

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Members: Western Pine Assn., West Coast Lumber Assn., Ponderosa Pine Woodwork



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Easily attached to any ¼" electric drill, the Draco Plastic Shear, cleanly, smoothly cuts and trims all synthetic resin materials and laminated plastic sheeting. Cuts straight-line, curved or circular patterns, leaving a smooth mill-edge which eliminates sanding and finishing. Portable, lightweight, simple to operate . . . Designed for precision cutting without dust or chips . . . It saves time, labor and material costs. Unlimited applications!

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You're seeing a Gerlinger Fork Lift Truck showing some of the remarkable stamina and stability that causes users to say, *"Our first choice is Gerlinger for the BIG JOBS!"*

What you can't see till you own one are the tremendous savings you gain. As you move more tons per hour . . . at much less cost . . . your profits increase in proportion. *Gerlinger* offers standard gas-powered, pneumatic-tired, *Job-Proved* fork lift trucks that handle as much as 40,000 pounds per trip. (Diesel engines optional.)

Want to see how savings match the load? Ask for Certified Job Studies covering your specific handling operations—and new Gerlinger Specifications Folder *GSS*. Write Towmotor Corporation, Cleveland 10, Ohio or Gerlinger Carrier Company, Dallas, Oregon.*

**TOWMOTOR** ®
THE ONE-MAN-GANG

**-GERLINGER** LEADERS FOR 40 YEARS IN BUILDING FORK LIFT TRUCKS, CARRIERS AND TRACTORS

*Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation



Use Reader Service Coupon on Page 147.

Ridgewood Motor Hotel, Beaumont, Tex. According to section secretary, Paul Kramer, Texas Forest Service, Lufkin, Tex., the meeting will include a "Welcome to Texas" social event on Sunday evening, a full day of technical sessions on Monday, and tours to the new Kirby sawmill, Silsbee, and the East Texas Pulp & Paper Co., Evadale, on Tuesday morning.

Members from four sections—Midwest, Upper Mississippi Valley, Great Lakes, and Ohio Valley—will attend a region-wide meeting at Chicago's Hilton Hotel, November 5-6, according to J. J. Allegretti, Masonite Corp., and F.P.R.S. North Central Region Board Member. Principal subject to be covered is up-to-date technical and merchandising developments in wood finishes. Complete details will be mailed to members.

The Great Lakes section will hold a regular meeting at the Fort Shelby Hotel, Detroit, Mich., October 6-7. Theme will be "Merchandising of Lumber and Wood Products." Speakers will include: Dr. E. S. Harrar, F.P.R.S. president; Ralph Pauley, president, Dayton-Akron Sash & Door Co.; Elon E. Ellis, vice-president, Timber Structures, Inc.; and S. W. Anthony, Koppers Co. Chairman is S. W. Tamminga, vice-president, Hekman Furniture Co., Grand Rapids, Mich.

**Wood Safety Sessions.** Four sessions of the 47th National Safety Congress, annual convention of the National Safety Council, will be devoted to problems of the wood products industry. Of special interest to delegates attending these sessions will be: a slide-illustrated discussion of "Sawmill Safety—Edger to Green Chain," in the West, South and Northeast; "Materials Handling in Woodworking Plants," which will encompass furniture plants, sash and door mills and veneer mills; and "Power Saws in Logging," by Will Rusch, McCulloch Corp., Los Angeles, and L. S. Turner, Thomas Industries, Louisville, Ky. The congress will be held in Chicago, October 19-23.

**Furniture Mart Officers.** General Lawrence H. Whiting, president, American Furniture Mart Corp., Chicago, was named vice-chairman of the board at action taken at the recent annual board of directors meeting. Frank S. Whiting, former vice-president, was named president of the corporation.

**Forestry Congress Program.** Discussion sessions covering all major fields of forestry is providing the program of the Fifth World Forestry Congress, which began August 29 and will run through September 10. The meeting, which is drawing an estimated attendance of 1,200 from all over the world, is being held on the University of Washington campus in Seattle.

Subjects include silviculture, forest management, genetics, protection, economics and policy, education, harvesting and utilization, management of forest and range watersheds, and forest recreation. One feature is a discussion of multiple-use management of forest lands for integrated production of timber, forage, water, game and recreation.

Though the Organizing Committee invited general papers on topics of world-wide interest from world forestry leaders, any participant is free to present a special paper on any congress topic, treated from his personal point of view. Official languages of the congress are English, French and Spanish.

Tours are being offered in various major sections of the country, to show a cross-section of American forestry, conservation and forest industries. An exhibit of forestry and latest forest tools, machinery and equipment, together with other educational material on forestry and conservation, is being held in conjunction with the meeting.

**Prefab Group to Meet.** The annual convention of the Home Mfrs. Assn. will be held at Hotel Roanoke, Roanoke, Va., October 25-28. Speakers will include

**N.A.F.M. Convention, Fair**

**Because dates for National Association of Furniture Mfrs. 31st annual convention and 5th concurrent fabric fair follow September issue deadline, a report of the meeting will be published in October WOOD & WOOD PRODUCTS. The convention and fair will be held in Chicago's Conrad Hilton Hotel, August 29-September 1.**

**The Editors**

**cuts your sanding costs**

Cardwell's radically new Auto Panel Feeder loads from the top without a stop. Panels feed from bottom of stack at speeds to match any sander. Breaks loose almost ALL stuck panels. No rakers, pushers to damage panels. Needs no pit . . . no air or hydraulic circuits. Adjusts in 2 minutes for varying lengths or thicknesses. Yet, with all these advantages, the Cardwell Auto Panel Feeder costs 1/3 less than others! Write for details.

The CARDWELL MACHINE COMPANY
Quality and Advanced Design Since 1829
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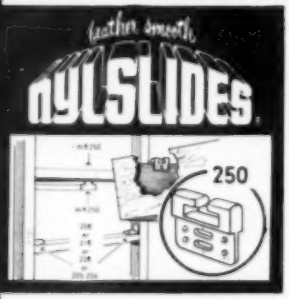
*NEW!* **No. 250 NYLSLIDES**
for SMOOTH, QUIET-SLIDING DRAWERS
NYLON DRAWER GLIDES and GUIDES
**COSTS LESS! INSTALLS FOR LESS!**
*Puts a* **STOP** *to those* **HARD-TO-OPEN DRAWERS!**




**No. 250 Installation**
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- NO MOVING PARTS
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- SIMPLE TO INSTALL
- ECONOMICAL

For FURNITURE! KITCHEN CABINETS! VANITORIES!
Write for Free Samples, Spec. Sheets and Bulk Prices
*will design and fabricate to your specifications*
**HARDWARE DESIGNERS, INC.**
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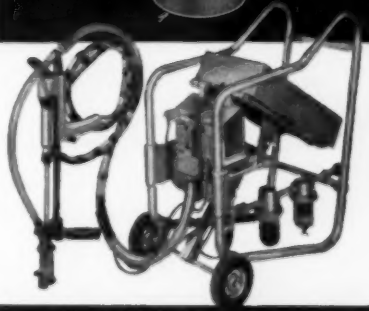
# ONE POWASERT®

## Nailing Machine Drives More Nails than 4 hammers

Even 20d nails fed and driven automatically without effort.

POWASERT closes boxes for fragile goods rapidly, accurately, and safely.



Single blow POWASERT nailer with speeds up to 150 nails per minute and the POWASERT multiple blow nailer and Feeder-separator supplied with both models.

Powasert Nailing Machines cut nailing time 60%. They reduce fatigue, speed production, eliminate nailing bottlenecks and do a better job. Increased safety: no bruised fingers; bent or flying nails are eliminated. Morale is improved. Money is saved.

A window manufacturer in Minnesota reports a 50% reduction in the total time required to manufacture their windows. Powasert nailers also permitted conveyorizing the production line. Hammer marks were eliminated.

An Illinois woodworking company reported they were producing 8 top and bottom crate sections each hour. After a Powasert nailer was installed production leaped to 32 top and bottom crate sections each hour for a 400% increase.

A boat builder uses nails for high quality sea skiffs — replacing screws — and increased production of decks, floors, and small parts by 60% and over-all production by 15%. Production has increased from 8 to 15 boats a week.

If you are nailing by hand in any volume, Powasert Nailers can help you cut costs and improve quality. Write us today for more information or a trial in your plant on your production line.

**United**

**UNITED SHOE MACHINERY CORPORATION**
**140 Federal Street, Boston, Massachusetts**

President Eugene E. Kurtz, FHA Commissioner Julian Zimmerman, and Carl Mitnick, president, National Association of Home Builders. The program will include technical and merchandising workshops, a panel on land acquisition and development, and sessions on home finance and labor. Also scheduled are tours to the Lesco Homes plant, Martinsville, Va., and to model homes produced by Continental Homes, Inc., Boones Mill, Va.

**Hardwood Plywood Meeting.** The annual fall meeting of the Hardwood Plywood Institute will be held at the Peabody Hotel, Memphis, Tenn., October 7-9. Program will follow the workshop—seminar format with talks by leading industry representatives. The meeting will officially begin the afternoon of the 7th with a board of directors meeting.

Featured luncheon speaker will be Harold I. Patterson, director, Chrysler Corp. Training Center, Atlanta, Ga., who will talk on "Selling is Your Business." Dr. E. Sigurd Johnson, president, Production Development Co., Raleigh, N. C., and Charles Freeburg, president, Fairhill, Inc., Memphis, Tenn., and director of the Home Mfrs. Assn., will address members on the closing day. Each talk will be followed by group discussions. George Lester, F. Eggers Plywood & Veneer Co., Two Rivers, Wis., will moderate the cut-to-size group, Don Gott, Roddis Plywood Corp., the panel group, and Carl Wheeler, Georgia Pacific Corp., Savannah, Ga., the manufactured home and motel group.

Members also will tour Memphis Plywood Corp., Southern Laminating Co. and Nickey Bros., Inc.

A proposed commercial standard on laminated hardwood block flooring will be discussed in conjunction with the flooring committee report. The standard, establishing two grades — prime and standard—both in prefinished and unfinished, is being presented to the U. S. Department of Commerce for approval.

**FAMILY LIVING IDEA CENTER located in main level of Chicago's C.&N.W. Station gives commuters a firsthand view of do-it-yourself projects designed to stretch the livable space of city apartments and suburban homes. Built-in space savers include music and television center, hideaway bar, sewing center and disappearing wallbed. Exhibit, complete with demonstrations, is sponsored by AMF DeWalt Power Tools and U. S. Plywood Corp.**

## PERSONNEL CHANGES

**Gilbert L. Oswald** has been named general manager, Simpson Redwood Co., Arcata, Calif., according to **Gordon J. Manary,** vice-president. In his new position Oswald will be responsible for the company's northern California facilities.

**Irwin Kvalheim** has joined Kvalheim Machinery Co., Petaluma, Calif., as plant supervisor.

A new management team consisting of **George L. Collier** as president and **T. K. Dorsey,** executive vice-president, has taken over direction of Dorsey Trailers, Elba, Ala., following the recent death of President **J. V. Wright.** The company was recently purchased by Dorsey Corp., New York City.

**Max A. Fritz** has joined Arco Paint Co., Cleveland Ohio, as vice-president, according to **Kenneth E. Clarke,** president. Arco is a division of American-Marietta Co., Chicago. Fritz formerly was associated with Robertson Co., Louisville, Ky., as vice-president and general manager, and with Indianapolis Paint & Color Co., Indianapolis. **Ben Francis Edman** has been appointed general manager, Sewall Paint & Varnish Co., Kansas City, Mo., also a division.

**J. J. Curry** has been named midwest regional sales manager, Yale Materials Handling Div., Yale & Towne Mfg. Co.,

"EVERYTHING HINGES ON HAGER!"®
We'll make IT for you! For standard (5,000 different types and sizes) or special hinges, write or wire: C. Hager & Sons Hinge Mfg. Co., Victor & "I" Street, St. Louis 4, Mo.
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HAGER HINGES
Founded 1849, Every Hager Hinge Swings on 100 Years of Experience

# "OLIVER" No. 88

TILTING ARBOR

# MITER SAW

FINEST ACCURACY

*Plus*

MAXIMUM SAFETY

Fine engineering combines accuracy, convenience and safety. Base and baffle plates encase lower part of saw, assure safety . . . adjustable splitter prevents pinching of work after cut . . . overhead cage guards top of saw in tilted positions. Up to 18" diameter saw size . . . miters and dadoes at square or any angle to 45 degrees. Send for folder giving technical details.

**OLIVER MACHINERY COMPANY**

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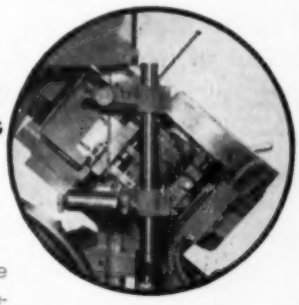
# A *New* SAW that ALL WOODWORKING PLANTS can USE and AFFORD!

**MODEL T36-4**

The Model T36-4 using a 4" wide blade, 36" wheels, standard 20 hp drive motor, adjusto-speed feed motors gives feed rates from 10 to 250 feet per minute. Machine completely roller and ball bearing. All cast iron construction. Complete with tilt up to 45 degrees on feed works. Can also be furnished as a Band Rip Saw.

**IF IT IS—**
**BEVEL SAWING OR STRAIGHT SAWING**

**This machine does the work**



Tilted to 45 degree position for bevel re-sawing in moulding plants or any bevel sawing operation.

For further information write

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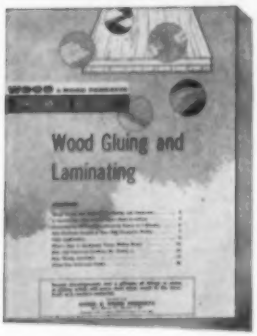


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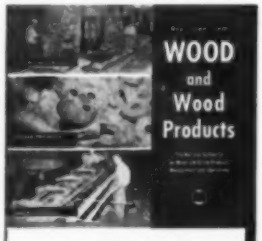


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Philadelphia, Pa. according to **Clyde R. Dean, Jr.,** general sales manager.

## NOTES ABOUT SUPPLIERS

**U. S. Plywood Corp.,** New York City, will construct a new particle board plant in South Boston, Va., on the Dan River, according to Gene C. Brewer, president. The new plant, to supplement the company's West Coast facilities, will produce an annual capacity of 60 million sq. ft. on a 3/8 in. basis. According to reports facilities will encompass 80,000 sq. ft. of floor space and utilize the latest

## COMING EVENTS

**Sept. 10-11:** Wood Industries Conference, American Society of Mechanical Engineers, Multnomah Hotel, Portland, Ore.

**Sept. 14:** Annual meeting, California Redwood Assn., San Francisco, Calif.

**Oct. 5-6:** Conference on Packaging Specifications, Purdue University, Lafayette, Ind.

**Oct. 6-7:** Annual convention, National Hardwood Lumber Assn., Montreal, Quebec, Canada.

**Oct. 6-7:** Meeting, Great Lakes section, Forest Products Research Society, Fort Shelby Hotel, Detroit, Mich.

**Oct. 7-9:** Annual fall meeting, Hardwood Plywood Institute, Peabody Hotel, Memphis, Tenn.

**Oct. 11-13:** 11th annual meeting, Mid-South section, Forest Products Research Society, Beaumont, Tex.

**Oct. 11-14:** 84th annual meeting, American Forestry Assn., Bedford Springs Hotel, Bedford, Pa.

**Oct. 19-23:** 1959 fall furniture market, American Furniture Mart, Chicago, Ill.

**Oct. 19-23:** 47th annual National Safety Congress and Exposition, National Safety Council, (various hotels) Chicago, Ill.

**Oct. 24-30:** Southern market, Southern Furniture Exposition Bldg., High Point, N. C.

**Oct. 25-28:** Annual convention, Home Mfrs. Assn., Hotel Roanoke, Roanoke, Va.

**Nov. 5-6:** North Central regional meeting, Midwest, Upper Mississippi Valley, Great Lakes sections, Forest Products Research Society, Hilton Hotel, Chicago.

**Nov. 5-7:** 18th annual meeting, Northern Sash & Door Jobbers Assn., Greenbrier Hotel, White Sulphur Springs, W. Va.

**Nov. 9-12:** Annual meeting, National Lumber Mfrs. Assn., Statler Hotel, Washington, D. C.

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American and European techniques in wood and chemical technology. The South Boston location is near approximately 250,000 acres of southern pine, from which the plant will draw its raw material. Construction is scheduled to start before the end of 1959, with production to begin a year later.

**W. Von Arnauld Co.,** Oakland, N. J., has been appointed exclusive U. S. representative for the Vollmer line of automatic saw grinding machines manufactured in Dornhan, West Germany.

**Stetson-Ross Machine Co., Inc.,** Seattle, Wash., has been sold to Stephen J. Hall, according to recent announcement by Orville Smith, former owner. Hall, recently resigned as vice-president of Simpson Timber Co., has assumed the position of president and general manager. No other personnel changes are contemplated. George Dickson will continue as vice-president, assisted by Chandler W. Jones in sales.

S. J. Hall

Prior to his association with Simpson Timber, Hall directed Pacific Northwest operations for Booz, Allen & Hamilton, business consultants, in which capacity he served several large lumber companies. Founded in 1907, Stetson-Ross specializes in the production of planers and matchers and other high precision machines for the lumber industry.

**Synvar Corp.** will move its manufacturing facilities from Willington, Del., to new quarters at Deemers Beach, New Castle, Del. The move will take place by the end of the year. According to George Spiller, president, the plant's production schedule will not be interrupted by the change. Company products include resins and adhesives for the woodworking industry.

**Masonite Corp.,** Chicago, has completed its new hardboard production Unit 7 and extensively modernized four other units in Laurel, Miss. The new plant and corollary improvements will enable an annual production increase of 25%. Cost of the expansion is reported to be $22 million.

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## WOOD PUZZLERS

This department is designed to help find answers to your production and sales problems. Let us know what information you need. Other readers may be able to help you.—*The Editors.*

### 270—Needs Thick Plywood

We are interested in developing a source of supply for thick plywood. We need maple or beech plywood in 3/32 or 1/16 ply thickness laminated to 1 1/2, 2 and 2 1/2 in. thicknesses. This material can be furnished in sheets or in strips. If it is furnished in strips, we would require a minimum width of about 2 1/2 in. Length is relatively unimportant. (*N. Y.*)

### 271—Flat Oval Pieces

We wish to contact a source of supply for flat oval pieces in oak or ash—4 1/8 in. long, 2 15/16 in. wide, and 7/32 in. thick. We have contacted a number of flat dimension plants but, up to this time, have not been able to locate a source sufficiently low enough in price to permit us to keep the item in our line. (*R.I.*)

### 272—Twisted Handrails

We are in need of twisted handrails for circular stairways. Can you help us locate the right manufacturers, preferably in the western part of the country such as California? (*Ariz.*)

### 273—Crating Shook

Could you put us in touch with several suppliers of the following, preferably within a 200-mile radius of Louisville, Ky.: cut-to-size mixed hardwood lumber, ready to nail together for crates? We want it delivered to us at Louisville in truckload quantities every day so that we can assemble crates to pack bathtubs. This is a large volume business on a year-in, year-out basis. (*Ky.*)

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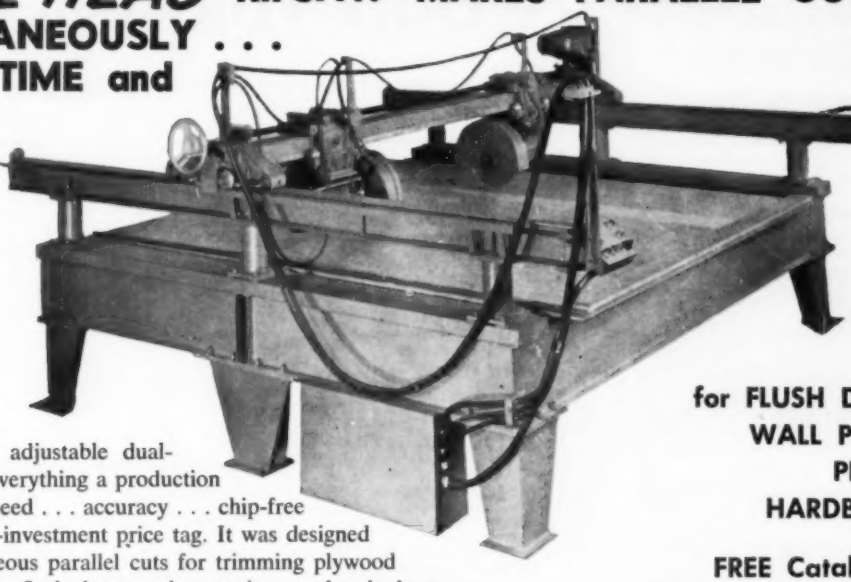

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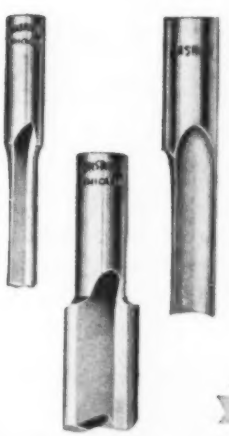

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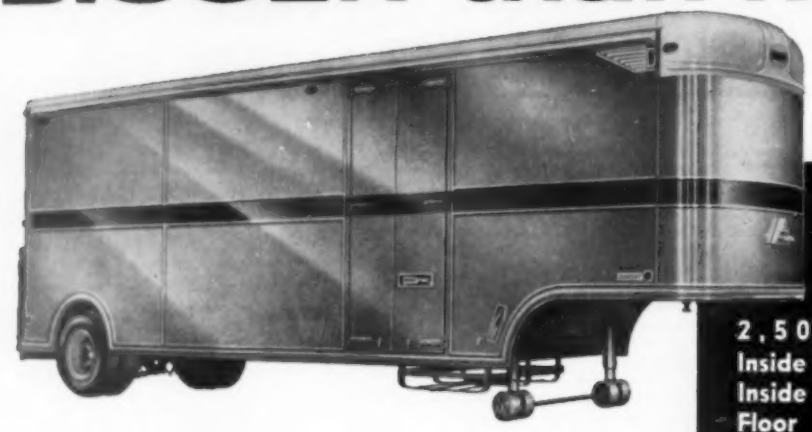

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*with substantial rub rails

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Please forward to the companies concerned our requests for more detailed information, literature or help as offered in the issue items circled below. We understand there is no obligation on our part for this service.

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For his contributions to the advancement of the wood industry...

# WOOD Salutes...

## DR. ALFRED J. STAMM

FOR MORE THAN 20 YEARS, Dr. Alfred J. Stamm, chemist at the U.S. Forest Products Laboratory, Madison, Wis., has devoted a large part of his efforts to the intricate problem of why wood swells and shrinks and to formulating ways of making it "stand still." His efforts have been so successful that he is known as "Dr. Stability" in wood research circles around the world.

Such familiar terms as "impreg," "compreg," and "acetylated wood" identify special treatments he has developed.

However, Dr. Stamm regards the basic research he has done on movement of liquids and vapors through wood as of much more fundamental and lasting importance.

"We need this basic information," he points out, "if we are to develop more effective ways of not only stabilizing wood but seasoning it and otherwise improving it for use."

For example, a few years ago the Army's Chemical Warfare Service

asked whether a sheet material could be developed that would screen out atomic fallout, disease germs and poisonous gases while admitting oxygen and passing out carbon dioxide and water vapor. The result was a wood fiber material Dr. Stamm named "diffusion board" which met all specifications.

A native of Los Angeles, Dr. Stamm was graduated in chemistry from the California Institute of Technology in 1921. After a year as a chemist with a petroleum concern in Los Angeles, he came to Madison to teach chemistry at the University of Wisconsin. He remained for three years during which time he earned his master's and Ph.D. degrees.

In 1925 he joined the laboratory staff, advancing in rank from chemist to senior chemist, principal chemist, chief of the Division of Derived Products, and finally subject matter specialist in wood chemistry. His work was interrupted only twice, when in 1928 he went to the University of Upssala, Sweden, for a year as an International Education Board fellow and in 1955 he went to Australia for a year on a Fulbright senior research assignment.

He officially retired from the laboratory in July of this year—but only to take up a new career as research professor at North Carolina State's School of Forestry in Raleigh. There he will organize a course in wood chemistry, the first full credit course of its kind at any forestry school in the country.

Dr. Stamm also has been active in the American Chemical Society, serving as chairman of its Colloid Division in 1934, chairman of the Wisconsin section in 1936, and chairman of the Cellulose Division in 1953. He has published more than 120 papers and reports and holds 11 patents.

Nearing 50, there's an air of emphatic, yet relaxed vigor about Dr. Stamm. Colleagues say its an infectious kind of energy that imbues younger men carrying on under him with something of his probing eagerness.

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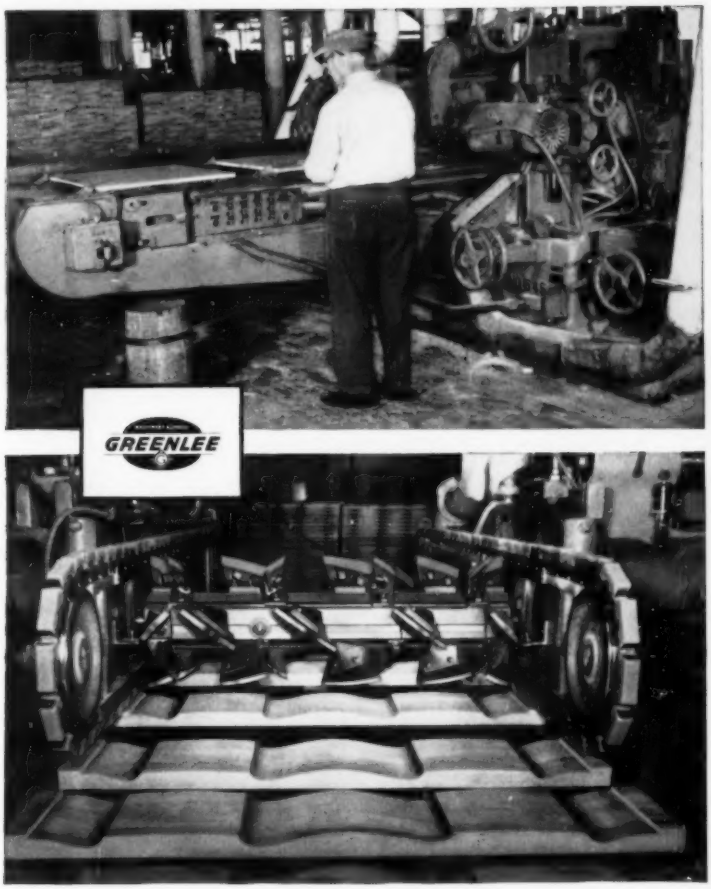


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They are particularly pleased with the success they have had in cutting *solid* hardwood serpentine drawer fronts for the beautiful French Provincial Dresser at the right. This work is done on a Greenlee No. 545 Double-End Tenoner equipped with a dado attachment and lathe type cutterheads. The stock shown in the photo above is approximately 7½" wide by 36½" long. The company states that it could not achieve the same excellent production rate and smooth finish by any other means of machining.

*Investigate the tremendous production potential of the versatile Greenlee Double-End Machines. Write for complete information.*

**GREENLEE BROS. & CO.**

1711 TWENTY-FIRST AVE.
ROCKFORD, ILLINOIS

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## The MARK of America's Finest Wood Glues

This Trade Mark is a familiar one to American Wood Workers for it identifies wood glues that have attained a standard of excellence often imitated but never duplicated.

Backed by almost 60 years of wood gluing experience and the most outstanding Gluing Service staff ever assembled in the industry, Perkins Glues are known to be consistently uniform in quality and dependability.

The result is that a Perkins Glued product is always a better product.

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**Lansdale, Pennsylvania**

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